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Participation in Post-Secondary Education in Canada: Has the Role of Parental Income and Education Changed over the 1990's?

by Marie Drolet

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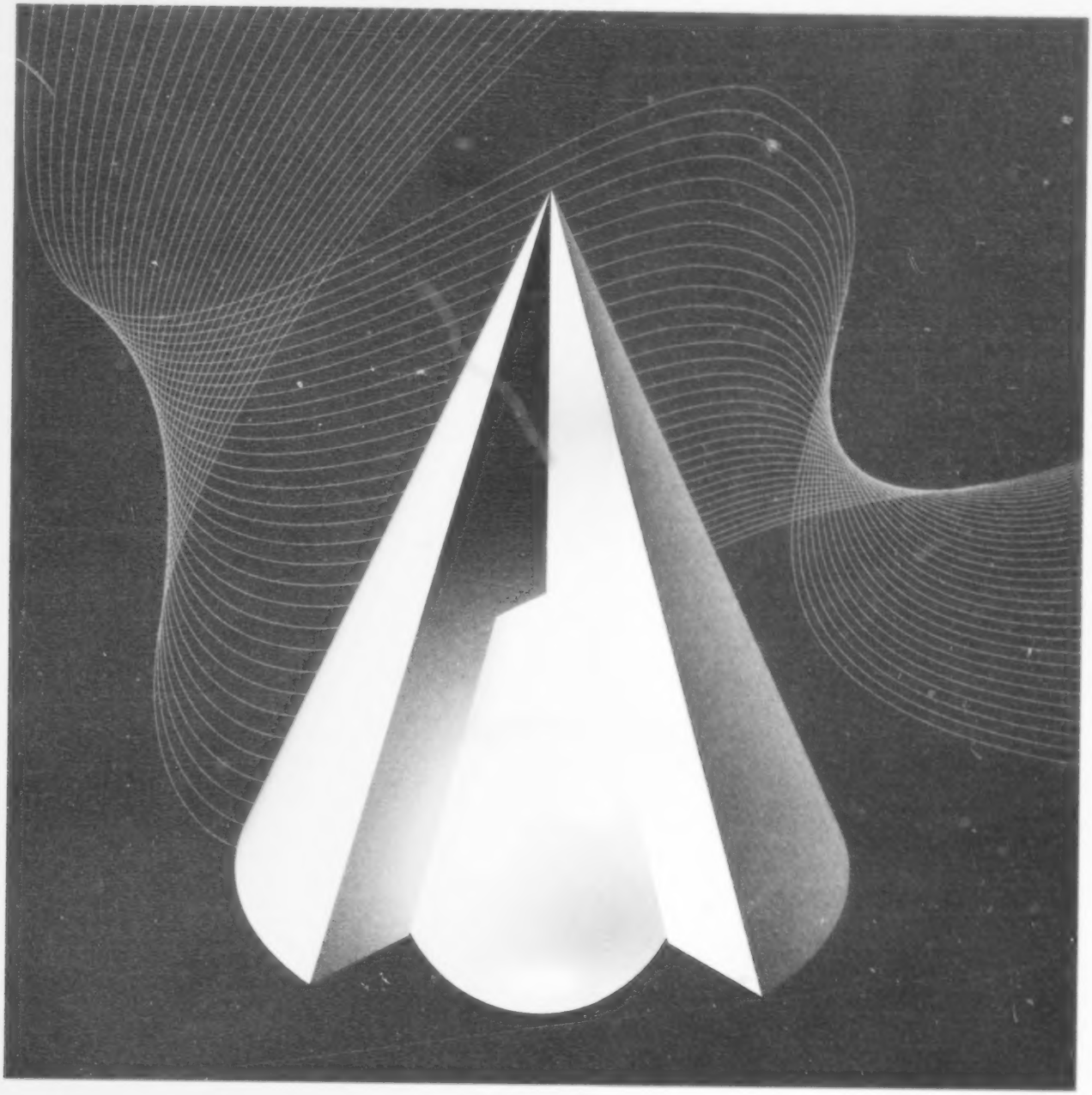

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11F0019 No. 243
ISSN: 1205-9153
ISBN: 0-662-39525-5

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February 2005

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Published by authority of the Minister responsible for Statistics Canada

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105-03056/

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Abstract

This paper examines the extent to which the relationship between participation in post-secondary education and family background, namely parental income and parental education changed between 1993 and 2001. The results support a long-standing pattern that university participation rates are highest among youths from high-income families and of highly educated parents. There is no evidence to suggest that this relationship between university participation and family background changed over the 1993–2001 period. Although university participation rates generally rise as family incomes increase, there is little difference in participation rates among youths from modest-income (below $75,000) and low-income families. Overall, the correlation between university participation and family income changed very little between 1993 and 2001. Next, when taking account of both parental education and parental income, university participation rates are more strongly associated with parents' level of education than with their income. The paper discusses significant data gaps and concludes that these data gaps do not have important implications on conclusions about the relationship between post-secondary education and family background throughout the 1993–2001 period.

Keywords: university participation rates, family background

I. Introduction

According to the 2002 Survey of Approaches to Educational Planning, over 80% of Canadian children had parents whose educational aspirations for them included a post-secondary education.[1] For the individual, higher education is linked to success in the labour market through higher earnings and better career opportunities. For society, a highly skilled workforce is important for achieving socially desirable goals related to equality of opportunity, to social inclusion, and to promoting citizenship. For the economy, a skilled workforce fosters innovation and improves Canada's competitiveness in an ever-increasing global market.

These benefits are echoed in recent government initiatives regarding post-secondary education. As part of its promise to invest in Canadians, the federal government is dedicated to increasing access to post-secondary education by introducing legislation to help low-income families provide for their children's post-secondary education (Canada, 2004). The Ontario government recently announced that a comprehensive review of the design and funding of Ontario's post-secondary educational system will be undertaken to ensure a high quality, accessible and affordable system (Ontario Ministry of Education, 2004).

For everyone to reap the benefits, the costs associated with getting a post-secondary education may pose challenges. First, the 1990s have witnessed significant tuition hikes: in the fall of 2000 undergraduate arts students in Canada paid (expressed in 2001 constant dollars) on average $3,456 in tuition up from $1,866 in 1990-91 (Corak, Lipps and Zhao, 2003).[2] Second, the inability of parents to save enough may limit access to higher education: in 1999 less than one-fifth of families with incomes less than $30,000 were saving for the post-secondary education of their children compared to about two-thirds of those with more than $80,000 who were doing so (Statistics Canada, 2001). Third, the *amount* that parents have been saving for post-secondary education falls substantially short of the current estimated total average cost of attendance: the median accumulated value of education savings reported in 1999 for all children aged 18 and under was $3,000 (Statistics Canada, 2001) while a year at university for those living at home typically costs around $10,000 (including tuition, books and other expenses) and attending an out-of-town institution adds an extra $5,000 (Finnie, 2002). Fourth, student borrowing levels and debt burdens have risen in the 1980s and 1990s. During the 1990s, about 40% of bachelor students finished their studies holding student loans, however their debt load increased from about $10,000 in 1990 to about $14,000 in 1995 (Finnie, 2002). Fifth, while most parents expect their children to contribute to their post-secondary education by working and saving, many rely on the use of financial resources outside the family (taking out loans or receiving grants, scholarships or bursaries).[3]

Given this information it is not surprising that access to post-secondary education remains an important policy issue. The contribution of this paper is to present the findings of an empirical

1. Shipley, Ouelette and Cartwright (2003) Table A-3.

2. See Figure 2 in Corak, Lipps and Zhao (2003).

3. Of the 2 million Canadian children aged 13-18, 90% were expected by parents to contribute to their own post-secondary education, 29% were expected to receive bursaries or grants, 30% were expected to use government student loans and 11% were expected to take out repayable loans from financial institutions, family or friends. (Shipley, Ouelette and Cartwright (2003) Table A-13.)

analysis of participation in post-secondary education—particularly participation in university—for the 1993–2001 period. This paper takes advantage of data from the Survey of Labour and Income Dynamics to update and extend some of the findings of other work (namely, Corak, Lipps, Zhao (2003) and Finnie, Laporte and Lascelles (2004)). The goal of the paper is threefold. First, the paper provides a descriptive analysis of access to post-secondary education by parental income and parental education. Second, the paper asks whether the effect of parental income and education became stronger during the period 1993–2001. Third, the paper discusses significant data gaps and resolves previous dilemmas in the literature.

The results support a long-standing pattern that university participation rates are highest among youths from high-income families and of highly educated parents. There is no evidence to suggest that this relationship between university participation and family background changed over the 1993–2001 period. Although university participation rates generally rise as family incomes increase, there is little difference in participation rates among youths from modest-income (below $75,000) and low-income families. Overall, the correlation between university participation and family income changed very little between 1993 and 2001. Next, when taking account of both parental education and parental income, university participation rates are more strongly associated with parents' level of education than with their income. The paper discusses significant data gaps and concludes that these data gaps do not have important implications on conclusions about the relationship between post-secondary education and family background throughout the 1993–2001 period.

II. Literature review

The importance of the issue of access to post-secondary education is captured in the flurry of recent publications. From the literature, several interesting findings are noted.

First, there is a longstanding pattern that individuals from high-income families are more likely to attend university than individuals from low-income families. Zhao and de Broucker (2001) use data from the 1998 Survey of Labour and Income Dynamics to document that the rate of university attendance was 2.5 times greater for youths from families in the highest quartile of the income distribution compared to those youths from the lowest quartile of the income distribution. Corak, Lipps and Zhao (2003) (hereafter referred to as CLZ) use data from the Survey of Consumer Finances (1979-1997) and find that individuals from high-income families are much more likely to be engaged in university education.

Second, although individuals from high-income families are more likely to attend institutions of higher education, researchers have documented a convergence in the relative participation rates in post-secondary education of children from high-income families and from low-income families. Using data from the Survey of Consumer Finances (1975–1993), Christofides, Cirello and Hoy (2001) show that in 1975 children from high-income families (that is, the top fifth of the income distribution) were 3 times more likely to attend institutions of higher education than children from low-income families (that is, the bottom fifth of the income distribution) but by 1993, they were only 1.6 times as likely. CLZ (2003) update Christofides, Cirello and Hoy (2001) up to 1997 and find that the participation gap between students from the highest and the lowest income families has, in fact, narrowed and this was mainly due to slight increases in the participations from lower-

income households and to declines in the rates from middle-income families during the 1980s to the mid-1990s.

Third, the higher the parents' level of education the more likely the child will pursue post-secondary education. De Broucker and Underwood (1998) suggest that highly educated parents play an important role in motivating their children to pursue post-secondary education by providing an environment that encourages learning. Using data from the 1994 International Adult Literacy Survey, de Broucker and Lavallée (1998) show that the probability of earning a diploma or a degree is highest for young adults whose parents also have a post-secondary education. The findings of Finnie, Laporte and Lascelles (2004) (hereafter referred to as FLL), support those of de Broucker and Lavallée (1998) but FLL (2004) also show that the relationship between participation and parents' education became stronger during the late 1990s. In fact, participation rates climbed for individuals with highly educated parents and climbed less or even declined for individuals from families with lower parental education. Interestingly, the gap in participation rates by family type shrunk in the 1990s.[4]

III. Data and definitions

III.1 The data

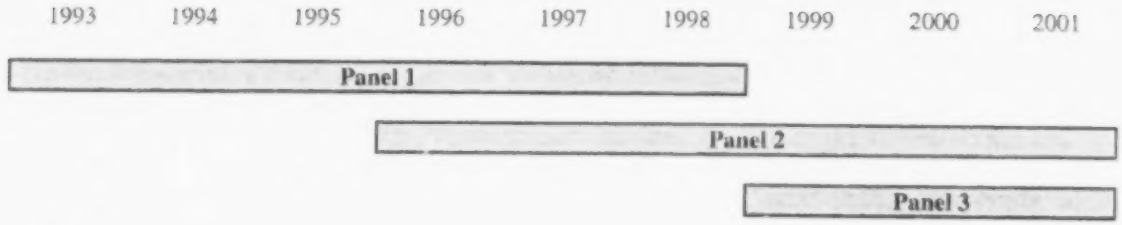
The Survey of Labour and Income Dynamics (SLID) is a longitudinal panel survey of individuals. The goal of the survey is to measure changes in the economic well-being of individuals and to identify the factors that influence those changes.

The target population is the population of the 10 provinces on December 31 of the reference year excluding persons living on reserves, in institutions or in military barracks. All longitudinal persons and individuals living in their households (co-habitants) are part of the cross-sectional sample. The cross-sectional population and their respective weights are used in most of the tables in this paper.

The survey is composed of panels of six years in length. Panel 1 was selected on December 31, 1992, Panel 2 on December 31, 1995 and Panel 3 on December 31, 1998. A new panel is selected every three years to replace the outgoing panels. Since the introduction of the second panel in reference year 1996, two panels overlap for a period of three years as shown in Figure 1.

4. FLL (2004) could not examine the convergence in the relative participation rates by family income since family income is not available on either the School Leavers Survey (SLS) or the Youth in Transition Survey (YITS). Family income is considered unreliable when reported by young persons.

Figure 1
Overlapping SLID panels



Using the cross-sectional nature of the SLID data, Figure 1 shows that the estimates derived for reference years 1993-1995 use information from Panel 1. Estimates derived for 1996-1998 combine information for individuals from both Panels 1 and 2 while estimates for 1999-2001 use information from Panels 2 and 3.

Analytical samples

Two samples of interest are used in this study and presented in Table 1. The first sample includes all SLID respondents aged 18–24 who were no longer attending either elementary or high school during the reference year.[5] The exclusion of respondents still attending either elementary or high school translates to about 12% to 15% of the sample. The sample size varies between 3,000 respondents using the first panel of data from 1993–1995 to between 6,500 and 7,100 using two panels of respondents in the reference years 1996–2001. This corresponds to a weighted population of 2.3 to 2.5 million Canadians aged 18–24 who are no longer attending high school or elementary school.

The second sample includes SLID respondents aged 18–24 who were no longer in elementary or high school AND who were living with at least one parent (birth, step, adopted or foster) during the reference year.[6] Excluding respondents who were not living with at least one parent during the reference year amounts to excluding about 43% to 49% of the sample of Canadian youths aged 18–24.[7] The sample size varies from about 1,600 to 3,800 depending on the reference year and the number of responding panels. This final sample corresponds to 1.4 to 1.6 million Canadians aged

5. Including those individuals still attending elementary or high school in the reference year will result in biased participation rates as mentioned in FLL (2004). For example, if those individuals still attending high school or elementary school are considered to be non-participants in post-secondary education, the overall participation rate would be biased downwards since some of these individuals may go on to some kind of post-secondary education.

6. The relationship of each household member to every other household member is examined. In this sample, a child is defined as a young adult aged 18-24 who is the son or daughter (birth, step, adopted or foster) of another household member. CLZ (2003) define 'child living in an economic family' as young adults aged 18-24 who are either the son or daughter (natural or adopted), grandchild, foster child, son or daughter-in-law, brother or sister, or other relative of the household head.

7. There appears to be a slight downward trend in the proportion of youth not residing with a parent in the reference years 1993-2001 (Table 2).

18-24 who were no longer attending elementary of high school and who were living with at least one parent.

Both samples are used in the analysis. However, the analytical sample used will be clearly defined at the beginning of the section. As mentioned, the SLID is a longitudinal survey. As such, many of the young people in the sample would be the same in any two consecutive years, some coming of age, reaching 18 and some retiring from the sample, reaching age 25.[8]

III.2 Definitions

Measures of participation in post-secondary education

The current study examines two definitions of participation. First following CLZ (2003), participation in post-secondary education is defined by combining information on the highest level of education attained and the current attendance in school. University participation refers to those youths aged 18–24 who have completed a university degree or certificate or who are currently enrolled in university. College participation refers to those youths aged 18–24 who have obtained a community college, CEGEP, or trade diploma or certificate or who are currently enrolled in a community college, CEGEP, or trade diploma or certificate program.[9] This taxonomy—between university and college participation—gives a greater importance to the highest level of education attained than to current school attendance. Any post-secondary participation is simply the combination of university participation and college participation.

The above definition represents participation in post-secondary education but not necessarily access. The literature suggests that 'continuing' and 'completion' should be considered measures of 'persistence'. Access is commonly referred to as having the opportunity to enter post-secondary education. CLZ (2003) exclude drop-outs defined as youths who had enrolled in college or university but who did not either complete that education or who are not currently attending.

An argument can be made to include drop-outs since they too have had access to post-secondary education. This study employs an additional definition of participation that incorporates information on whether the individual 'ever-enrolled' in university or 'ever-enrolled' in college (including business school, trade or vocational school). This is similar in spirit to FLL (2004).

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8. This has important implications for the calculation of standard errors. Year-to-year comparisons should take into consideration the non-independence of the SLID sample: the 1996 sample has Wave 1 and Wave 2 respondents and the 2001 sample has Wave 2 and Wave 3 respondents.

   All standard errors reported in this paper are calculated using bootstrap weights. The bootstrap samples are coordinated, meaning that each bootstrap sample is selected at the beginning of a panel and is kept throughout the life of a panel. Because the bootstrap weights are selected this way, all variances and covariances calculated using these bootstrap weights will take into account the common sample between two years. In other words, the bootstrap weights take into account the non-independence of the SLID sample.

9. 'College participation' includes attending trade school or vocational school. There is some debate whether attending trade/vocational school should be considered as participating in a college education. Roughly 3-5% of youths aged 18-24 in any given reference year attend trade or vocational schools. This small population will not affect the overall results in any significant manner.

Parental income

Parental income is defined for the population of youths residing with at least one parent (Sample 2 only).[10] The SLID captures the relationship between all household members. For each individual aged 18-24, a birth/step/adopted/foster parent-child relationship or match was sought. If a parent-child relationship exists, the income of the parent (mother or father) was assigned to the youth. Parental income is the total income (before tax) from all sources of the father and/or mother (birth, step, adopted or foster) and is measured in constant 2001 dollars using the Consumer Price Index.[11]

Parent's education

Parental education is captured for all youths aged 18-24 regardless of whether they are currently residing with at least one parent.[12] The concept of parents' education is defined by using the highest level of education completed by either of the respondent's parents.[13] Four levels of parents' educational attainment were then derived: 'university' for those youths with at least one parent with a university education (including bachelors, masters or PhD, and professional degrees) regardless of the education of the other parent; 'college' for those youths with at least one parent with a college diploma or certificate (but neither parent had any university education); 'high school or less' for those youths whose parents highest education was a high school diploma or less; and 'Don't know' for those youths where the educational attainment is unknown for both parents.[14]

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10. Some respondents could move in and out of the sample as they move in and out of their parent's residence. The survey documentation treats students and their parents as follows. Students are considered movers if they have spent less than a total of 30 days in the last 12 months in the selected parental dwelling or if their parents consider that they have moved permanently. Students must be traced to their new household and any joiners now living with them, are added. Students who leave the household from September to May but come back and stay more than 30 days are considered members of their parents' household and must be interviewed.

11. Some commentators will argue that after-tax income should be used since it provides a better measure of disposable income than before-tax income. However, for the purposes of this paper, the concept of before-tax income of the parents is employed. There are three main reasons for doing so. First, using before-tax income makes the results of the current study comparable to other recent studies, namely CLZ (2003). Second, recall that the relationship between household members is used to capture parent-child relationships. In doing so, SLID captures the before-tax income of the other household member (see footnote 6). Third, given that one focus of the paper is to examine changes in participation rates by parental income through time, 'before-tax income' is a stable concept since it is not subject to changes in the tax system.

12. The SLID captures parental education from the initial respondent. If a youth is living at home with his/her parent(s) and the parent is the initial respondent, then the parent responds for the child. In this case, the parent responds to the parental education question and reports his/her own education. If a youth is not living at home with his/her parents then the youth responds to the parental education question. Youths not living at home are slightly more likely to report parental education as 'don't know' for reference years 1993–1995 and 1999–2001 while there is no meaningful difference in the parental education variable by youth living arrangements for reference years 1996–1999.

13. FLL (2004) report results for (1) the highest level of education completed by either parent, (2) an average level of parental education, and (3) both parents have the same education level.

14. Table 2 shows that the fraction of youths who "Don't know" their parents' level of education has not changed over the 1993–2001 period.

Other variables

A set of dummy variables representing family type for those youths still residing with at least one parent were included. A 'couple family' refers to those youths residing in either a married couple or common-law couple family and a 'lone-parent family' refers to those youths residing in either a female- or male-headed lone-parent family.[15] Other variables include region (Atlantic provinces, Quebec, Ontario, Prairie provinces, British Columbia), age, sex and the interaction between parental income and parental education.

Table 2 contains the descriptive statistics for the variables used in the analysis. One important pattern is the clear increase in the level of parental education over the period.

IV. Descriptive analysis[16]

IV.1 Overall trends in participation rates[17]

Analytical sample: All youths aged 18-24.

The trends in the post-secondary participation rates of men and women aged 18–24 conform to expectations (Table 3).

Throughout the period 1993 to 2001, about 3 in 5 Canadians aged 18–24 and no longer in elementary/high school participated in some form of post-secondary education. Roughly 1 in 3 youths participated in college while fewer—about 1 in 4 youths—attended or completed university during the reference period. Slightly more youths—almost 2 in 5—had at some point during their academic careers enrolled in university.

Women continued to have higher participation rates in post-secondary education than men throughout the period due mainly to women's higher participation rates in university (about 4 to 10 percentage points higher).[18] Interestingly, the point estimates suggest that the gender gap in university participation began to widen over the period: in 1996, women's participation rates were 6.5 percentage points greater than men's and by 2001, their participation rates were 9.4 percentage points greater. However, the standard errors of the point estimates determine that the gender gap in

15. Sample sizes were too small to allow a separate analysis between female- and male-headed lone-parent families.

16. Unless stated otherwise, cross-sectional weights were used for most of the analysis in this section.

17. A comparison between participation rates at roughly similar points in the business cycle would be ideal. Any change in the participation rate would focus on a structural change and not on cyclical variation. Throughout the 1993-2001 period, it is not obvious which data points to compare to arrive at this conclusion. All years in the 1993-2001 period are in the 'recovery period' where 1993 is 'near trough' and 2001 is 'near peak'. In the analysis presented here, some results are sensitive to the time points chosen. For the most part, a 1996 and 2001 comparison is the most appropriate since sample sizes are large and the associated sample sizes are smaller.

18. Women's university participation rates are significantly higher than those of men for all years at the 5% level of significance with the exception of 1998.

the participation rates in university education has not changed over the period in any statistically meaningful way.

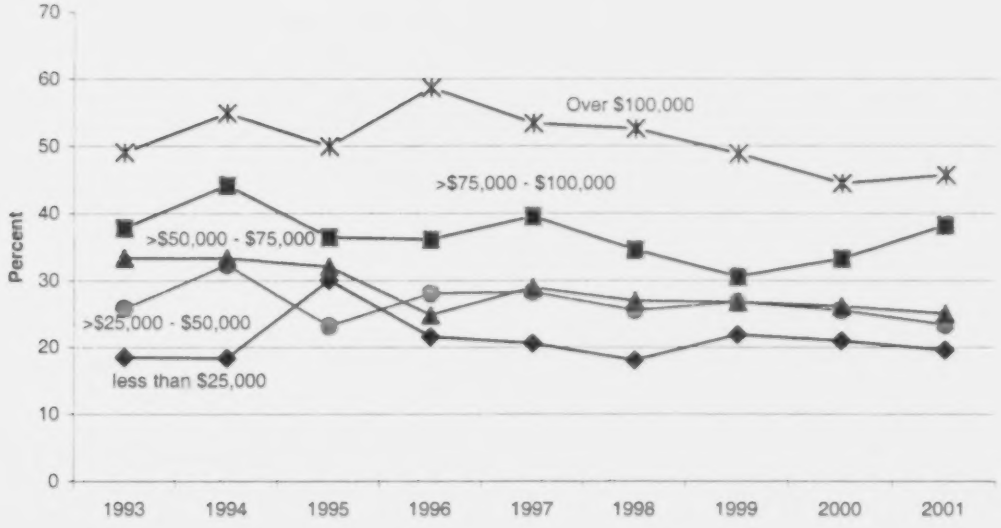
IV.2 Participation rates by parental income

Analytical sample: All youths aged 18-24 and living with at least one parent.

Participation in university

Picking up from CLZ (2003), this study includes data from 1993 until 2001. Table 4 presents the trends in post-secondary education participation rates by broad groupings of family income. Figure 2 depicts these trends graphically. Only those youths who reside with at least one parent (birth, step, adopted or foster) in the reference year are included in this part of the analysis. A number of interesting findings are noted.

Figure 2:
University participation rates 1993-2001



First, consistent with other studies, individuals from high-income families are more likely to attend university than individuals from low-income families.[19] The rate of university attendance is about two times greater for youths from high-income families (over $100,000) compared to youths from the lowest income families (less than $25,000) throughout 1993 and 2001.[20] For example, in 2001

19. A similar trend is noted for participation in 'any post-secondary education'. This trend is driven by higher university participation rates by income groupings.

20. These differences are statistically significant at the 1% level for all years.

about 45.6% of youths from high-income families have completed or are enrolled in university compared to 19.5% of youths from low-income families.[21]

Second, although university participation rates generally rise as family incomes increase, there appears to be little difference in the university participation rates of youths from families with modest to low incomes. In 2001, 19.5% of youths from families with the lowest incomes participated in university compared to 23.3% of youths from families with incomes between $25,000 and $50,000 and 25.0% from families with incomes between $50,000 and $75,000.

Third, there is little evidence to support the notion that the above-noted university participation gap between the highest and lowest family income group has changed in any meaningful way over the period (Figure 1). Youths from the highest income families had university participation rates that were 37.1 percentage points higher in 1996 and 26.1 percentage points higher in 2001. However, these gaps are not statistically different from one another at conventional levels.[22]

Limitations of parental income data

There are two notable drawbacks of the income data used in this study. The first drawback is the use of annual parental income. Annual income may not mirror the true financial means parents may have to support the post-secondary education of their children since annual parental income is highly variable from year to year.

Exploiting the longitudinal nature of the SLID data,[23] it is possible to use 2- and 3-year averages of parental income rather than annual income. For example, there were 7,171 youths aged 18-24 not attending high school or elementary school in 2001. Of these respondents, 5,520 were longitudinal respondents and 1,642 were cohabitants. Cohabitants are individuals living with a longitudinal respondent and were not part of the original longitudinal panel and are excluded from this part of the analysis since they rarely live with a parent. Of the longitudinal respondents, 3,461 lived with a parent in 2001. Parental income was reported for reference year–1 (1999) and reference year–2 (2000). Of the longitudinal respondents in 2001 (n=3,461), there were 3,151 observations used in the calculation of parental income using an average of 2 years and there

21. The point estimates seem to indicate that university participation is falling among youths from high-income families (from 58.6% in 1996 to 45.6% in 2001). However, using the standard errors provided in Table 4, one can reject the hypothesis (at the 10 % level of significance) that there was a statistically significant decline in the university participation rates of youths from high-income families between 1996 and 2001.

22. The hypothesis that the gap in participation rates declined over the 1996 and 2001 period was tested using the point estimates from Table 4 and their corresponding standard errors. Confidence intervals of the gaps in each respective year were calculated and shown not to be statistically different from one another at the 10% level of significance. In other words, there appears to be no significant decline (at least at the 10% level of significance) in the gap in the university participation rates of youths from high-income and low-income families.

23. Here we have combined the longitudinal respondents for overlapping panels to increase the sample sizes used in the analysis. Recall the SLID data structure from Figure 1. Estimates for 1998 are calculated using longitudinal respondents from Panel 1 and Panel 2 and estimates for 2001 are calculated using use longitudinal respondents from Panel 1 longitudinal respondents from Panel 2 and Panel 3. Combined panel longitudinal weights are used for this part of the analysis.

were 2,952 observations used in the calculation of permanent income using an average of 3 years. Alternatively, the proportion of the sample used for the calculation of the 2-year average is 91% (=3,151/3,461) and 85% (=2,952/3,461) for the calculation of the 3-year average. A similar exercise was performed for the reference year 1998.[24 25]

The results are unambiguous (Table 4a). Regardless of the measure of parental income—annual income, permanent income calculated using a two-year average and permanent income calculated using a three-year average—there were no qualitative differences between the estimates and the conclusions discussed previously. Thus, when the robustness of the income measure is assessed, the use of different income measures does not have important implications on the conclusions reached previously about the relationship between university participation and parental income.

Another major drawback of the data used in this study—which also plagues the work of others—is that parental income is defined only for those youths living at home with at least one parent (defined for roughly 60%–65% of the population estimate). In other words, for a significant portion of the sample (35%–40%) parental income cannot be measured directly. For this reason, it is difficult to extend the findings on the impact of parental income on the likelihood of participating in post-secondary education to the whole population of youths aged 18-24 when the item response rate is so low. Given these low response rates, the evidence of the changing impact of parental income on the participation rates of youths in post-secondary education is incomplete.[26]

For those longitudinal respondents not living with at least one parent in the reference year, the relationships within the household were examined two years earlier.[27] In almost half of the cases, the youths did live with a parent two years earlier. From these parent-child relationships found two

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24. Appendix Table 1 shows how these data were constructed and sample sizes used to calculate the estimates.

25. The proportion of the sample used in the calculations for 1998 and 1995 were 94% and 91% respectively.

26. Youths living with at least one parent tend to be younger, and are more likely to have enrolled in university. These findings may potentially impact the participation rate in university by parental income. Consider two extreme scenarios. In the first scenario, if only those children from high-income families are able to attend university out of town and they make up the majority of the those youths not living at home but who are currently attending or who have completed university then the reported proportion of youths from high-income families attending university would be downward biased or alternatively, the proportion would be conservatively estimated. In the second scenario, if the majority of youths not living at home come from low-income families and they are not attending university then the reported proportion of youths from low-income families participating in university would be biased upwards.

    Under either extreme scenario, the potential impact would be to widen the gap in participation rates in university between youths from high-income families and low-income families. Holding constant the participation rates from low-income families, in scenario 1, the proportion of youths participating in university from high-income families is underestimated (overestimated), hence the "true" estimate may be higher, thus widening the gap. Holding constant the participation rates from high-income families, in scenario 2, the proportion of youths participating in university from low-income families is overestimated, hence the "true" estimate may be lower, thus widening the gap. The data do not allow us to determine which scenario is most plausible. If whatever scenario occurs is constant over time, this should not affect the observed trends.

27. Combined panel longitudinal weights were used in this analysis.

years earlier, we are able to obtain a unique economic family identifier.[28] Using this unique identifier, we can (in over 93% of the cases) find total economic family income in the reference year.[29]

Using longitudinal respondents in 2001 (n=5,520), there were 3,461 respondents living with at least one parent while 2,059 did not. It is for these 2,059 respondents that we want to identify their parents and ultimately assign a value for parental income. Of these 2,059 respondents, 1,043 respondents lived with their parents two years earlier when the respondents were aged 16-22. We were able to assign parental income to an additional 978 respondents. For the remaining respondents, we cannot assign parental income. Appendix Table 2 houses the results for reference years 2001 and 1998.[30]

This method allows the direct measurement of parental income to over 80% of the sample for the reference years 1998 and 2001 compared to only 65% using information for those youths still residing with at least one parent. Again, the results are unambiguous (Table 4a). After assigning parental income to youths no longer residing at home, there were no qualitative differences between the estimates and the conclusions discussed earlier in the paper and those using the above method. Thus, the fact that parental income is captured only for the population of youths still residing at home does not have important implications on the conclusions reached in this paper.

Participation in college

The rates of participation in college are much more similar across parental income groupings—differing by no more than 10 percentage points for youths from low-income families compared to youths from high-income families (Table 4). In fact, the standard errors suggest that college participation rates of youths are similar across all parental income categories.

The implication of this result suggests that college participation rates are not tied as closely to parental income as university participation. However, the construction of the college participation variable is *conditional* on not participating in university. In other words, those who are not participating in university have a chance—in probabilistic terms—to participate in college. If the

28. An economic family is composed of two or more persons living together who are related by blood, marriage, adoption or common-law.

29. One pitfall of this method is that income is measured as the total of all before-tax income from all economic family members and is not a measure of parental income. This may be inconsequential if one assumes that the contribution of youths to economic family income is small. Another difficulty associated with this method is assigning the correct economic family identifier to the youth in the case of multiple family households.

30. Examining the relationships within households two years earlier restricted the analytical sample to longitudinal respondents only. Yet this restriction allowed the information from two survey panels to be combined, thereby doubling the analytical sample size and increasing the precision of the estimates. The combined panel longitudinal weights were used in the calculation of the estimates.

rate of college participation were to take this into account, the result would be to give greater variability to college participation across income groups.[31] This is exactly what happens.

Table 5 shows that between 1993 and 2001, the college participation rate of youths from low-income families (less than $25,000) is 40% compared to about 60% of youths from high-income families (over $100,000). This gap in conditional college participation rates between youths from low-income and high-income families is similar to the gap in university participation rates by income groups. Further, there is no evidence to suggest that the gap has changed over the 1990s.

IV.3 Participation rates by parental education

Analytical sample: All youths aged 18-24.

Post-secondary participation is strongly related to the parents' education as demonstrated in Table 6. Each higher level of parental education is associated with a higher rate of any post-secondary education and of university participation. In other words, the chance of participating in university is highest for the children of university-educated parents than for the children of parents with other levels of education. In 2001, the rates of participation in university were 16.6%, 27.8% and 49.6% for youths with parents with high school or less, college or university education. A similar pattern holds for participation in any type of post-secondary education but is less extreme.[32]

Although each higher level of parental education is associated with a higher participation rate in any post-secondary education and in university, this is not the case for college. In fact, children of parents with a high school education or less are just as likely to participate in college as children of parents with a university degree. This is a consistent finding throughout the 1996-2001 period.[33]

Is the gap between the participation rates in university of children of low-educated parents and of high-educated parents narrowing over the 1990s? Figure 3 suggests a narrowing of the gap in university participation rates by parental education over the 1996-2001 period: in 1996, the university participation rate for youths of university educated parent was about 41 percentage points higher than the rate for youths of high school educated parents and by 2001, it was 33 percentage points higher. However, this convergence is not statistically significant. In other words, once one takes account of the sampling variability, there is little evidence to support the notion that the

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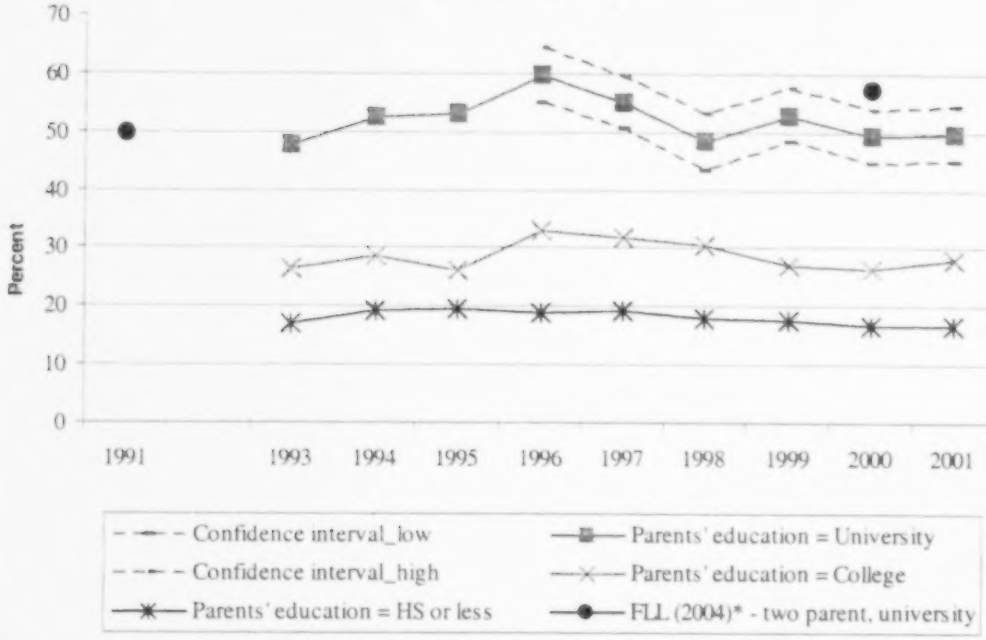
31. The conditional probability of college participation is computed as follows: (participation in college)/{100-(participation in university)}. This is equivalent to calculating college participation for the population at risk of participating, in this case, to those not currently attending or completed university.

32. For participation in any type of post secondary education, the rates are 56.5%, 70.7% and 86.4% in 1996 and 52.5%, 68.2% and 81.1% in 2001 respectively.

33. There is some weak evidence in 1996 and 1997 to suggest that children of parents with a high school education or less are more likely to attend college than the children of parents with a university education. In 1996 and 1997, the difference was statistically significant at the 5% and 10% level of significance respectively. For all other years, there is no statistically significant difference, at least at the 10% level of confidence.

participation rates in university education of youths with highly educated parents versus low educated parents narrowed between 1996 and 2001.[34]

Figure 3:
University participation rates by parental education



Note: FLL(2004)* -two parent, university: this label indicates that the highest level of education of at least one of the parents is university level.

IV.4 Participation rates by family type

Analytical sample: All youths aged 18-24 and living with at least one parent

Children from lone-parent families typically face many disadvantages even while the number of such families continues to increase. In this context, the type of family that a youth belongs to plays an important role in the decision to pursue post-secondary education.

Several consistent findings are noted. First, young people from couple families are consistently more likely to participate in a university education: in 2001, the university participation rate for youths living in couple family was 32.1 percent compared to 21.9 percent in lone-parent families

34. The hypothesis that the gap in participation rates narrowed over the 1996 and 2001 period was tested using the point estimates from Table 6 and their corresponding standard errors. Confidence intervals of the gaps in each respective year were calculated and shown not to be statistically different from one another at the 10% level of significance. In other words, there appears to be no significant decline in the gap in the university participation rates of youths of highly educated parents versus youths of parents with a high school education.

(Table 7).[35] However, as shown later in the multivariate analysis, once controls for income are included, these differences disappear. Second, the point estimates suggest a decline in the university participation rates of youths from lone-parent families between 1993 (27.6%) and 2001 (21.9%), however, the decline is not significant at the 10% level of significance. Third, there is little evidence to support the notion that the gap in participation rates of youths from couple and lone-parent families changed over the period.[36] Fourth, there is virtually no difference in the college participation rates of youths from couple and lone-parent families.

IV.5 Participation rates by region

Analytical sample: All youths aged 18-24.

Regional differences in the participation in post-secondary education are captured in Table 8. The participation rates in all levels of post-secondary education are relatively consistent across all years for most regions. In 2001, university participation rates were highest in the Atlantic provinces.[37] The exception being Ontario where participation rates increased between 1993 and 1997 and declined slightly thereafter.[38] Quebec had the lowest participation rates in university but the highest participation in college since CEGEP is a combination of high school and college. For other regions, participation in college is consistent across regions and stable across the decade in review.

V. Multivariate analysis

V.1 Specification of the models

The first objective of the analysis is to examine the relationship between parental income and participation in post-secondary education over the 1993–2001 period.

Here, the methodology of CLZ (2003) is followed. A linear probability model of post-secondary education is estimated using the three following access measures as the dependent variables Y_i— university, ever-enrolled in university and college. Let Y_i represent the post-secondary education status of youth i aged 18–24. Y_i takes on the value of 1 if individual i is currently attending a post-secondary institution or has received a post-secondary degree or diploma. Let X_i represent the natural logarithm of parental income of individual i's parents.

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35. The university participation rates of youths from couple families were significantly higher (at the 1% level of significance) than the university participation rates of youths from lone-parent families throughout 1993-2001.

36. The hypothesis that the gap in participation rates narrowed over the 1996 and 2001 period was tested using the point estimates from Table 7 and their corresponding standard errors. Confidence intervals of the gaps in each respective year were calculated and shown not to be statistically different from one another at the 10% level of significance. In other words, there appears to be no significant decline in the gap in the university participation rates of youths from couple families versus youths of lone-parent families.

37. The point estimates suggest that youths in the Atlantic region have the highest participation rates in university. This finding is statistically significant at the 5% level for Quebec, the Prairie provinces and British Columbia and at the 10% level for Ontario. All other regional differences are not statistically significant.

38. The decline in the university participation rates in Ontario is statistically significant at the 10% level of significance but not at the 5% level of significance.

$$Y_i = \beta_0 + \beta_1 X_i + \varepsilon_i$$

(Model 1: Correlation between parental income and participation)

where β_0 is a constant and β_1 is simply the change in the chances of participating in post-secondary education for each percentage point change in parental income and ε_i is a random component. In general, β_1 is the correlation between participation in post-secondary education and parental income.

Alternatively, Model 1 can be re-specified such that parental income is captured in the following categorical groupings: less than $25,000; $25,000 - $50,000; $50,000 - $75,000; $75,000 - $100,000 and over $100,000. Using a linear probability model,[39] the same dependent variables as above are employed.

$$Y_i = \beta_0 + \sum_{i=1}^{4} \beta_i parental_income_category_i + \sum \beta_r region + \sum \beta_f familytype + \varepsilon_i$$

(Model 2: Participation and parental income categories)

The second objective of the analysis is to examine the relationship between parental education and participation in post-secondary education over the 1993–2001 period. Here, the methodology of FLL (2004) is followed. Using a linear probability model, the same dependent variables as above are employed.

$$Y_i = \beta_0 + \sum \beta_e parent_education_i + \sum \beta_r region + \varepsilon_i$$

(Model 3: Correlation between parental education and participation)

Dummy variables are used to represent the different level of parent's education (representing the highest level of education of the two parents in the case of couple families), as well as measures for region and family type. The omitted categories are parents with a high school education or less, living in a couple family and living in Ontario.

The above analysis introduces the separate effect of parental income (Models 1 and 2) and parental education (Model 3) on the decision to participate in university. Because parental education and parental income are highly correlated, when modelled simultaneously (Model 4), we would expect that the effect of parental income and parental education would be dampened. Using a linear probability model, the same dependent variables as above are employed.

$$Y_i = \beta_0 + \sum \beta_e parent_education_i + \sum \beta_i parent_income + \sum \beta_r region + \sum \beta_f familytype + \varepsilon_i$$

(Model 4: Including parental income and education simultaneously)

39. A logit or probit model was not employed for a number of reasons. First, unlike in the LOGIT or PROBIT models, the coefficient estimates are directly interpretable in probability terms. Hence, the results are more accessible to a broader readership. Second, Moffit (1999) shows that Linear Probability Models (LPMs) generate similar results to limited dependent variable specifications when the mean of the dependent variable is not close to zero or one.

Dummy variables are used to represent the different levels of parent's education (representing the highest level of education of the two parents in the case of couple families), categorical parental income as well as measures for region and family type. The omitted categories are parents with a high school education or less, parental income between $25,000 and $50,000, living in a couple family and living in Ontario.

Including both parental income and parental education separately, in the decision to participate in university (Model 4), implicitly assumes that the differential effect of parental education is constant across all income levels and that the differential effect of parental income is constant across all parental education categories. This is to say that participation in university is higher for children with at least one parent who went to university and that is so regardless of parental income. Likewise, participation in university is higher for children of high-income parents and this is so regardless of parental education.

This assumption is restrictive. There may be an interaction between parental education and parental income that is not accounted for when these variables are introduced separately. For example, the decision to participate in university may be greater for youths with highly educated and high-income parents than for youths with highly educated and low-income parents. Using a linear probability model, the same dependent variables as above are employed. Model 5 is estimated:

$$Y_i = \beta_0 + \sum_{n=1}^{3} \beta_n \, parent_educ_n + \sum_{k=1}^{4} \beta_k \, parent_income_k + \sum_{l=1}^{12} \beta_l \, income_education_l +$$

$$\sum_{z=1}^{6} \beta_z \, region_z + \sum_{m=1}^{4} \beta_m \, familytype_m + \varepsilon_i$$

(Model 5: Interaction effects of parental income and parental education)

where β_0 is a constant, β_n is simply the change in the chances of participating in post-secondary education for each parental education group, β_k is the variation in the probability of participating for each group of parental income, β_l is the differential effect of parental education and parental income jointly, β_z is the change in the chances of participating for each region, and β_m is the change in the chances of participating for each family type.

V.2 Results from the multivariate analysis

First, the correlation between participation in post-secondary education and parental income is examined. Using a sample of youths aged 18-24 and living at home with at least one of their parents, Model 1 is estimated. Table 9 houses the results.[40]

The estimation results show that there is a positive and statistically significant (at the 1% level) correlation between university participation and parental income over the period. The change in

40. Appendix Table 1 houses the results when 'ever-enrolled in university' is used as the dependent variable.

post-secondary participation associated with changes in parental income can be measured through the concept of elasticity. The results of Model 1 shows that estimated elasticities between parental income and participation in university are quite low—less than 0.1 for most years between 1993 and 2001.[41] This indicates that a 10% increase in parental income increases the chance of participating in university by no more than 1%. Overall, the correlation between university participation and parental income changed little between 1993 and 2001. The bottom panels of Table 9 show that the results are virtually unchanged when 2- and 3-year averages of parental income are used. Further, there is essentially no correlation between family income and college participation between 1993 and 2001. The highest estimated elasticity is less than 0.01 and the coefficients are not statistically different from zero for all survey years between 1993 and 2001.

Now examining the regression coefficients when parental income is captured in categorical groupings (Model 2), the simple correlations between youths participating in university and their parent's level of income demonstrated in Section IV is reinforced. Table 10 shows as expected, that first, there is a positive relationship between participation in university and parental income: as income increases, the likelihood of participating in university grows. Holding constant region and family type, youths from families with the highest income parents (over $100,000) have significantly higher rates of participation (about +20 percentage points) in university than youths from families with modest incomes (less than $75,000). This pattern is consistent for every survey year. Second, there is no statistically significant difference in the participation rates of youths from family income groups of less than $75,000. Again, this pattern is consistent for every survey year. Third, the point estimates suggest that the participation rates in university by youths from the highest family income group fell between 1996 and 2001 (0.274 versus 0.216) however there is little evidence (at the 10% level of confidence) to conclude that the rate declined between 1996 and 2001. Fourth, there is little evidence to suggest that the participation gaps noted between income groups changed over the period.

The correlation between youths participating in university and their parent's level of education demonstrated in Section IV 'Descriptive analysis' is reinforced by the multivariate analysis (Model 3). Model 3 establishes three consistent results (Table 11).

First, there is a positive relationship between participation rates in university and parental education: as parental education increases, the likelihood of participating in university rises. Holding constant region and family type, having university educated parents is associated with a 33 percentage point increase in the probability of attending or completing university over those youths with parents with a high school education or less in 2001. Having college-educated parents is linked on the one hand, to a significantly higher likelihood of participating in university than youths whose parents have a high school education or less (11 percentage point increase) and on the other hand, to a significantly lower likelihood of participation in university than youths whose parent's have a university education (about 22 percentage point difference in 2001).

Second, the above-mentioned pattern is consistent for every survey year and for each measure of university participation (those attending or those who have completed university and those 'ever-enrolled' in university).

41. These elasticities fall within the same general range as those produced by CLZ (2003).

Third, the influence of parental education on university participation rates has not changed since 1993. Examining the coefficients on parental education–university–in Table 11 shows that the influence of parental education on youth participation in university appears to have strengthened between 1993 and 1996 (from 30.8% to 40.2%), fallen slightly thereafter and by 2001, the participation rate is closer to its 1993 value (33.0% and 30.8% respectively). However, paying close attention to the standard errors of the estimates leads to a different interpretation. Generally, the standard errors computed on the estimated coefficients for 1996 and 2001 suggest that the decline in participation rates of youths of highly educated parents observed between these periods is not statistically significant at any conventional level.

The above-analysis introduces the separate effect of parental income (Model 2, Table 9 and 10) and parental education (Model 3, Table 11) on university participation. The main finding is that both parental income and parental education matter individually. Because parental education and parental income are highly correlated, when modeled simultaneously (Model 4), we would expect that the effect of parental income and parental education would be dampened.

This is exactly what happens but both income and education remain statistically significant at the 1% level for all years (Table 12). That is, there is a strong positive correlation between the decision of Canadian youths to participate in university and both parental income and parental education. This finding is consistent for each survey year. Table 12 demonstrates that having at least one parent with a university education is linked with an increase in the probability of going to university by 22.8–30.6 percentage points compared to youths with high school educated parents regardless of parental income.[42] Having parents with a high income is associated with an increase in the likelihood of university participation of 12.4–21.2 percentage points compared to youths from modest-income ($25,000–$50,000) families regardless of parental education.[43]

Including parental income and parental education separately in the decision to participate in university (as in Model 4) implicitly assumes that the differential effect of parental education is constant across all income levels and that the differential effect of parental income is constant across all parental education categories. Loosening this assumption, interactions between parental education and parental income were introduced in Model 5 and the results are presented in Table 13.

First, having highly educated parents (university) increases the chances of university participation for all survey years even after controlling for parental income. The results are slightly stronger for 'ever-enrolled' in university.[44] Second, after controlling for parental education and introducing interaction effects, there is no longer a statistically significant positive correlation between parental income and the likelihood of participating in university. Third, the importance of parental education and income is estimated jointly through the calculation of predicted values (Table 14). The previous results are reinforced. Taking account of both parental education and parental income, participation

42. This increase in the probability is statistically significant at the 1% level for all reference years.

43. This higher likelihood is statistically significant at the 1% level for all reference years with the exception of 1999 and 2000 where the higher likelihood is statistically significant at the 5% level.

44. See Appendix Table 3.

in university is more strongly associated with parental education than to parental income. Table 14 shows that on one hand, youths from families with highly educated parents are the most likely to attend or complete university regardless of parental income level: the predicted participation rates of youths of highly educated parents varies between 60%–72% for those from high-income families and from 43%–64% for those from modest-income families. On the other hand, Table 14 shows the university participation rates of youths whose parents have a high school education or less varies between 25–45% for youths with high-income parents and between 18–30% for those modest-income parents. Fourth, for the most part, the interaction effects β_i are not statistically significant as measured by the t-statistic. In other words, the simultaneous presence of parental education and income do not reinforce the individual effects of these attributes.

Given the last finding, it is tempting to conclude from the t tests that these differential effects of education and income should be omitted from the analyses. However it should be noted that parental income and parental education are highly correlated and for this reason, tests on individual regressors are not reliable. The F test—which measures the significance of all the interaction effects jointly—does not support the conclusion of the t test.[45] In fact, the results of the F test suggest that the interaction effects should be included. Omitting the significant interaction terms will lead to specification bias, bias in the estimates and inaccurate inference tests. Contrary to Knighton and Mirza (2002), the interaction effects are kept in the analysis.

All models were re-estimated using the 2-year and 3-year average of parental income. Coefficient estimates of parental education and parental income along with their standard error are included in Table 15. The major conclusions of this section are consistent regardless of the measure of parental income used. Thus, the data limitations with respect to the measure of parental income do not have important implications on the relationship between university participation and family background between 1993 and 2001.

VI. Discussion of results

VI.1 How do these results compare to other research?

The research of Corak, Lipps and Zhao (2003) and Finnie, Laporte and Lascelles (2004) are the most similar in spirit to the current research.

The current study reinforces three major findings of CLZ (2003). First, CLZ (2003) found that university participation rates trended upwards for students from all family income groups until the early 1990s and were relatively stable until 1997 (Figure 4). Picking up from CLZ (2003), the SLID

45. Results from Table 12 and Table 13 are used to calculate the F test statistic.

data replicate these trends until 2001 (Figure 2).[46] Second, CLZ (2003) report that students from the lowest income groups are, by 1997, as likely to be attending university as those with modest-income parents (Figure 4). Again updating these results of CLZ, the current study documents that there is little difference in the participation rates of youths from low- and modest-income families (less than $75,000) over the 1996-2001 period. Third, both CLZ (2003) and the results of this paper note a positive correlation between parental income and university attendance.[47] CLZ (2003) further state that "the elasticity hovered around 0.08 and 0.10 before the 1990s and that this correlation became stronger during the early-mid 1990s ... and the correlation declined during the later half of the decade." The fact that the current study reports roughly constant elasticities between 1993-2001 supports the major conclusion of CLZ (2003) that "... in sum, our analysis offers no evidence that the correlation between family income and post-secondary participation is higher at the end of the 1990s than it was at the beginning" (page 14).

Figure 4:
From Corak-Lipps-Zhao (2003) Figure 9
Data from the Survey of Consumer Finances

Fourth, CLZ (2004) suggest that a more appropriate measure of parental income would be permanent income. Baker and Solon (2003) and Beach, Finnie and Gray (2003) suggest that the permanent income component accounts for the majority of the total variance in income with a

46. The participation rates reported in the current study are slightly higher than those reported in CLZ (2003)—see bottom panel of Table 2. Every attempt was made to apply consistent definitions and methodologies. Since both the SCF and SLID are based on the LFS sampling design, the remaining differences may be attributable to the fact that the information on the participation in university or college is reported at different times of the year, December in SLID and April in SCF. Another possibility is that income data in SLID comes from a combination of administrative sources and self-reported income while SCF income data is entirely self-reported. About 80% of SLID respondents grant permission to link their survey responses to their tax information.

47. CLZ (2003) report elasticities between university participation and family income for 18-24 year olds of 0.092; 0.089; 0.082; 0.060; 0.043 for the 1993–1997 period (their Table 2).

tendency to fluctuate with the business cycle. Along with measures of annual income from the Survey of Consumer Finances, CLZ (2003) use data from the General Social Survey to predict permanent income and re-estimate Model 1 with this measure. With this strategy, CLZ (2003) produce two sets of estimates of the correlation between income and participation: one that over-estimates the true parameter when using permanent income and the other that under-estimates the true parameter when using annual income. This paper does not adopt a similar strategy since the SLID data does not allow for an accurate measure of permanent income. Instead, this paper uses 2- and 3-year averages of parental income to proxy the potential savings behaviour of the family or the ability of the family to finance a post-secondary education at roughly the time when the decision to participate in post-secondary education is made.

FLL (2004) study a somewhat different period and draw somewhat different conclusions. Using data from the 1991 School Leavers Survey (SLS) and the 2000 Youth in Transition Survey (YITS), FLL (2004) conclude that first, the effect of parental education increased between 1991 and 2001, thus indicating a widening in post-secondary participation by parental education and that second, the gap in participation rates by family type narrowed over the 1990s. The current study finds no evidence to suggest either a widening in post-secondary opportunities by parental education or that the gap in participation rates of youths from couple and lone-parent families changed between 1993 and 2001. These results do not necessarily conflict with those of FLL (2004). On one hand, the current study cannot comment on trends prior to 1993 and as shown in Figure 9, participation rates continued to trend upwards until the early 1990s. It is possible for FLL (2004) to document an increase between 1991 and 2001, yet from these two data points, they cannot establish a trend in university participation rates over the entire period. The data used in this study is able to document that trend.[48]

VI.2. Other considerations

The literature dealing with access to post-secondary education has stressed the importance of background characteristics of persons who participate in post-secondary education compared to those who do not participate. Although the current study has demonstrated the importance of parental income and parental education, other factors have not been explored. Other research suggests that academic performance, school-related factors, cultural and social factors, the demand in the labour market for graduates, the economic returns to post-secondary education and living within commuting distance of a post-secondary institutions also have a strong influence on the decision to participate in post-secondary education (Butlin 1999; Tomkowicz and Bushnik, 2003; Bouchard and Zhao, 2000; De Broucker and Lavalleé 1998; Frenette, 2003). These factors are not explored in the current paper.

Other commentators have argued that parental income should be measured at the time the decision to attend post-secondary education is made, for example, while youths are still in high school and residing in their parents' home (Knighton and Mirza, 2002). While this may be possible with longitudinal survey data, it limits the analyses to particular years and moves away from examining post-secondary participation rates over time.

48. Another notable difference in the data is that parental education is reported by the youth in YITS and SLS. As noted in footnote 12, SLID captures parental education from the initial respondent.

Alternative financial resources of parents—such as education savings and wealth—are not included in the analysis. Obviously, these are important determinants of participation in post-secondary by family background but are not captured in the SLID data.

A final consideration is a youth's ability to access parental income. This research defines parental income as the combined income of the (birth, step, adopted or foster) father and/or mother. Consider two scenarios. First, there are many youths living in non-traditional family situations such as living with step-parents and these youths may not have access to the finances of the step-parent. Second, the parental income for youths in lone-parent families includes only the income of the residing parent. These youths may or may not have access to the finances of the non-residing parent.[49]

VII. Conclusion

This paper informs the policy debate by providing an empirical analysis of participation in post-secondary education by parental income and parental education and determining whether the relationship between participation and family background became stronger over the 1993-2001 period. The paper also highlights important data gaps and places the findings in the context of other work in this area.

The results support a long-standing pattern that university participation rates are highest among youths from high-income families and of highly educated parents. There is no evidence to suggest that this relationship between university participation and family background changed over the 1993–2001 period. Although university participation rates generally rise as family incomes increase, there is little difference in participation rates among youths from modest-income (below $75,000) and low-income families. Overall, the correlation between university participation and family income changed very little between 1993 and 2001. Next, when taking account of both parental education and parental income, university participation rates are more strongly associated with parents' level of education than with their income. The paper discusses significant data gaps and concludes that these data gaps do not have important implications on conclusions about the relationship between post-secondary education and family background throughout the 1993–2001 period.

49. The financial resources potentially available that could support participation in post-secondary education may be underestimated in lone-parent families since the income of the absent parent is not reported. This may have the effect of over-estimating the participation in post-secondary education from low-income families (where lone-parents are mostly located) because of the under-estimation of available financial support associated with participation, at least for some portion of the considered youth participation. This potential is not explored in this paper.

Table 1: Sample sizes, 1993-2001

	1993	1994	1995	1996	1997	1998	1999	2000	2001
All 18-24 year olds	3,808	3,884	3,884	7,841	8,003	8,187	7,674	7,413	8,163
Still in elementary/high school	696	640	577	1,189	1,228	1,240	1,030	919	992
Sample of all 18-24 not attending elementary or high school	**3,112**	**3,244**	**3,307**	**6,652**	**6,775**	**6,947**	**6,644**	**6,494**	**7,171**
Population estimate (in millions)	2,264	2,319	2,276	2,347	2,345	2,376	2,456	2,493	2,512
Sample of all 18-24, not living with a parent in the reference year	**1,421**	**1,564**	**1,651**	**3,168**	**3,326**	**3,332**	**2,914**	**2,915**	**3,408**
Percent of sample	46	48	50	48	49	48	44	45	48
Percent of population estimate	40	40	36	39	38	35	35	35	35
Sample of 18-24 not attending elementary or high school AND living with at least one parent	**1,691**	**1,680**	**1,656**	**3,484**	**3,449**	**3,615**	**3,730**	**3,579**	**3,763**
Population estimate (in millions)	1,366	1,389	1,460	1,432	1,450	1,542	1,595	1,615	1,647

Source: Survey of Labour and Income Dynamics, 1993-2001.

Table 2: Descriptive statistics, 1993–2001

Living with at least one parent	1993	1994	1995	1996	1997	1998	1999	2000	2001
Parental income									
Less than $25,000	0.141	0.164	0.169	0.202	0.195	0.175	0.137	0.137	0.142
$25,000–$50,000	0.295	0.263	0.292	0.263	0.253	0.247	0.258	0.243	0.241
$50,001–$75,000	0.258	0.280	0.222	0.236	0.236	0.233	0.241	0.243	0.252
$75,001–$100,000	0.166	0.157	0.174	0.161	0.163	0.173	0.187	0.191	0.187
Over $100,000	0.137	0.136	0.143	0.139	0.153	0.172	0.178	0.187	0.179
Parental education									
University-educated	0.208	0.212	0.227	0.203	0.204	0.200	0.231	0.229	0.232
Post-secondary education	0.242	0.250	0.264	0.223	0.249	0.251	0.261	0.271	0.268
High school or less	0.489	0.482	0.437	0.452	0.422	0.417	0.420	0.399	0.397
Don't know	0.061	0.056	0.073	0.121	0.125	0.133	0.086	0.101	0.104
Family Type									
Married or common-law couple	0.795	0.775	0.778	0.803	0.801	0.800	0.830	0.822	0.804
Lone-parent	0.205	0.225	0.222	0.197	0.199	0.200	0.170	0.178	0.196
Age									
Less than 21	0.572	0.559	0.621	0.636	0.614	0.604	0.629	0.639	0.630
21 or older	0.428	0.441	0.379	0.364	0.386	0.396	0.371	0.361	0.370
Sex									
Men	0.555	0.528	0.534	0.544	0.533	0.532	0.535	0.528	0.526
Women	0.445	0.472	0.466	0.456	0.467	0.468	0.465	0.472	0.474
All youths	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Living with at least one parent	0.603	0.599	0.641	0.610	0.618	0.649	0.649	0.648	0.654
Not living with at least one parent	0.397	0.401	0.359	0.390	0.382	0.351	0.351	0.352	0.346
Parental education									
University-educated	0.179	0.182	0.193	0.196	0.193	0.189	0.209	0.212	0.213
Post-secondary education	0.221	0.239	0.247	0.211	0.228	0.233	0.241	0.245	0.249
High school or less	0.488	0.484	0.460	0.468	0.440	0.432	0.436	0.413	0.398
Don't know	0.114	0.095	0.100	0.126	0.139	0.146	0.114	0.129	0.140
Age									
Less than 21	0.469	0.470	0.525	0.511	0.502	0.499	0.533	0.536	0.531
21 or older	0.531	0.530	0.475	0.489	0.498	0.501	0.467	0.464	0.469
Sex									
Men	0.505	0.498	0.501	0.508	0.500	0.502	0.509	0.501	0.502
Women	0.495	0.502	0.499	0.492	0.500	0.498	0.491	0.499	0.498

Note: Cross-sectional weights were used to produce estimates for the reference year.
Source: Author's calculations, Survey of Labour and Income Dynamics, 1993-2001.

Table 3: Participation rates in post-secondary education, 1993-2001 (standard errors)

Participation in	1993	1994	1995	1996	1997	1998	1999	2000	2001
Any post-secondary education	**58.5**	**60.6**	**61.7**	**61.7**	**64.0**	**62.2**	**60.1**	**59.6**	**60.2**
... women	61.1	64.6	66.0	65.7	68.4	65.3	65.9	64.6	64.8
... men	56.0	56.6	57.6	57.8	59.5	59.2	54.5	54.5	55.6
University	**25.1**	**27.3**	**27.4**	**28.7**	**29.1**	**27.4**	**26.5**	**26.1**	**26.9**
... women	28.0	29.6	32.4	32.0	31.9	29.0	30.5	30.6	31.6
				(1.487)	(1.359)	(1.402)	(1.174)	(1.218)	(1.118)
... men	22.3	25.1	22.5	25.5	26.2	25.8	22.7	21.6	22.2
				(1.518)	(1.454)	(1.355)	(1.159)	(1.084)	(1.262)
College	**33.4**	**33.3**	**34.3**	**33.0**	**34.9**	**34.8**	**33.6**	**33.5**	**33.3**
... women	33.1	35.0	33.6	33.7	36.5	36.3	35.4	34.0	33.2
... men	33.7	31.5	35.1	32.3	33.3	33.4	31.8	32.9	33.4
Ever-enrolled in university									
... women	36.7	37.2	39.3	36.9	37.8	38.2	37.1	36.8	38.7
... men	29.2	33.0	30.5	29.9	31.2	32.0	28.9	29.5	28.4
Number of observations	3,112	3,244	3,307	6,652	6,775	6,947	6,644	6,494	7,171

Sample: All youths aged 18-24 not attending high school or elementary school.
Note: Cross-sectional weights were used to produce estimates for the reference year. Bootstrap weights were used to calculate the standard errors for reference years 1996-2001. Bootstrap weights are not available for 1993-1995.
Source: Author's calculations, Survey of Labour and Income Dynamics, 1996-2001.

Comparison of participation rates	1993	1994	1995	1996	1997
Results from CLZ (2003)*					
... in University	25.0	25.0	23.0	24.0	23.0
...in College	24.0	24.0	25.0	25.0	24.0
Current study**					
... in University	31.8	35.2	32.4	31.5	32.5
...in College	33.6	33.1	36.0	34.9	37.0

*The CLZ (2003) sample includes only those youths aged 18-24 not attending high school or elementary school and v are the child of the household head.
** The analytical sample in this panel includes only those youths aged 18-24 not attending high school or elementary school AND who reside with at least one parent.

Table 4: Participation rates by annual parental income, 1993-2001 (standard errors)

Participation rates	1993	1994	1995	1996	1997	1998	1999	2000	2001
... in any post-secondary education									
Overall	65.4	68.3	68.6	66.4 (1.264)	69.5 (1.191)	67.3 (1.322)	65.7 (1.094)	64.7 (1.120)	65.4 (1.114)
Less than $25,000	48.4	49.0	62.7	53.4 (3.625)	60.3 (3.539)	54.7 (3.448)	52.6 (3.145)	49.9 (3.376)	48.9 (3.206)
$25,000-$50,000	62.8	64.8	64.4	64.7 (2.314)	65.0 (2.541)	58.4 (2.574)	61.1 (2.280)	59.5 (2.191)	59.8 (2.167)
$50,001-$75,000	68.9	70.0	63.4	64.9 (2.589)	69.9 (2.278)	68.2 (2.577)	65.2 (2.186)	65.6 (2.178)	63.2 (2.326)
$75,001-$100,000	72.2	81.0	79.6	73.5 (3.111)	74.4 (2.893)	76.6 (2.448)	70.3 (2.511)	69.3 (2.709)	76.3 (2.066)
Over $100,000	73.9	79.9	78.6	83.0 (2.484)	83.0 (2.589)	82.4 (2.417)	77.9 (2.429)	76.2 (2.508)	77.4 (2.411)
... in university									
Overall	31.8	35.2	32.4	31.5 (1.327)	32.5 (1.250)	30.7 (1.344)	30.7 (1.084)	30.0 (1.121)	30.0 (1.172)
Less than $25,000	18.4	18.3	30.0	21.5 (2.891)	20.5 (2.989)	18.0 (2.505)	21.8 (2.798)	20.9 (2.715)	19.5 (2.923)
$25,000-$50,000	25.7	32.3	23.1	28.0 (2.556)	28.2 (2.542)	25.5 (2.639)	26.7 (1.973)	25.5 (2.109)	23.3 (2.327)
$50,001-$75,000	33.3	33.3	32.0	24.8 (2.176)	28.9 (2.459)	26.9 (2.437)	26.7 (2.227)	26.1 (1.851)	25.0 (2.023)
$75,001-$100,000	37.8	44.1	36.4	36.1 (3.074)	39.5 (3.106)	34.5 (2.981)	30.5 (2.535)	33.2 (2.734)	38.2 (2.795)
Over $100,000	49.0	54.8	49.9	58.6 (3.486)	53.3 (3.551)	52.5 (3.310)	48.8 (2.838)	44.4 (2.858)	45.6 (2.831)
... in college									
Overall	33.6	33.1	36.2	34.9 (1.204)	37.0 (1.201)	36.6 (1.272)	35.0 (1.166)	34.7 (1.098)	35.4 (1.127)
Less than $25,000	30.0	30.7	32.7	31.9 (3.078)	39.8 (3.382)	36.7 (3.338)	30.8 (2.881)	29.1 (2.695)	29.4 (3.205)
$25,000-$50,000	37.1	32.5	41.3	36.7 (2.395)	36.8 (2.214)	32.9 (2.274)	34.4 (2.242)	34.0 (2.260)	36.5 (2.238)
$50,001-$75,000	35.6	36.7	31.4	40.1 (2.714)	41.0 (2.605)	41.3 (2.656)	38.6 (2.379)	39.7 (2.239)	38.2 (2.245)
$75,001-$100,000	34.4	36.9	43.2	37.4 (3.090)	34.9 (3.160)	42.1 (3.018)	39.8 (2.679)	36.1 (2.275)	38.1 (2.744)
Over $100,000	24.9	25.1	28.7	24.4 (2.871)	29.7 (3.165)	29.9 (2.676)	29.1 (2.511)	31.9 (2.593)	31.8 (2.437)

Table 4: Participation rates by parental income, 1993–2001(Concluded)

Participation rates	1993	1994	1995	1996	1997	1998	1999	2000	2001
... ever-enrolled in university									
Overall	39.0	41.8	38.9	35.2	37.3	37.8	36.1	37.0	36.3
	..	..	..	(1.330)	(1.271)	(1.316)	(1.165)	(1.246)	(1.153)
Less than $25,000	23.1	22.5	36.4	25.3	25.1	25.1	26.4	27.1	27.5
	..	..	..	(3.057)	(3.124)	(2.771)	(2.979)	(3.100)	(3.019)
$25,000-$50,000	31.2	40.4	30.6	31.9	32.2	34.3	32.5	32.6	30.0
	..	..	..	(2.627)	(2.585)	(2.827)	(2.214)	(2.278)	(2.187)
$50,001-$75,000	42.1	39.3	37.7	28.2	33.3	31.7	31.1	32.7	30.5
	..	..	..	(2.225)	(2.545)	(2.536)	(2.426)	(2.166)	(2.118)
$75,001-$100,000	47.6	49.7	42.0	39.4	45.8	41.6	36.4	41.4	44.0
	..	..	..	(3.147)	(3.213)	(3.064)	(2.774)	(2.729)	(2.816)
Over $100,000	56.7	63.2	56.5	63.2	58.1	60.1	55.1	51.3	52.3
	..	..	..	(3.404)	(3.517)	(3.086)	(2.671)	(2.913)	(2.888)
Average income	$63,309	$63,409	$63,462	$62,389	$63,733	$66,661	$68,476	$71,695	$70,944
Median income	$54,857	$56,256	$54,311	$54,769	$55,762	$57,638	$60,542	$61,388	$61,312

.. Not available for a specific reference period.

Sample: All youths, aged 18-24, not attending elementary or high school and living with at least one parent.

Note: Parental income measured in 2001 constant dollars. Cross-sectional weights were used to produce estimates for the reference year. Bootstrap weights were used to calculate the standard errors of the estimates for reference years 1996–2001. Bootstrap weights are unavailable for 1993-1995.

Source: Author's calculations, Survey of Labour and Income Dynamics.

Table 4a: Participation rates by alternative measures of parental income, selected years

I. Annual parental income

	University		College		Ever-enrolled university	
Income group	1998	2001	1998	2001	1998	2001
Overall	30.7	30.0	36.6	35.4	37.8	36.3
Less than $25,000	18.0	19.5	36.7	29.4	25.4	27.5
$25,000–$50,000	25.5	23.3	32.9	36.5	34.3	30.0
$50,001–$75,000	26.9	25.0	41.3	38.2	31.7	30.5
$75,001–$100,000	34.5	38.2	42.1	38.1	41.6	44.0
Over $100,000	52.5	45.6	29.9	31.8	60.1	52.3

II. 2-year average of parental income

	University		College		Ever-enrolled university	
Income group	1998	2001	1998	2001	1998	2001
Overall	32.1	30.1	36.0	36.2	38.7	36.7
Less than $25,000	17.8	21.9	36.9	30.9	29.1	30.4
$25,000–$50,000	28.9	25.0	32.3	38.2	36.3	30.7
$50,001–$75,000	28.0	25.2	40.0	36.8	33.1	32.2
$75,001–$100,000	35.0	32.8	41.5	40.3	42.6	41.0
Over $100,000	55.3	45.5	29.1	32.5	62.3	50.0

III. 3-year average of parental income

	University		College		Ever-enrolled university	
Income group	1998	2001	1998	2001	1998	2001
Overall	31.9	30.5	36.6	36.8	38.4	36.8
Less than $25,000	20.1	17.6	37.5	31.8	26.7	26.7
$25,000–$50,000	27.4	25.6	33.4	35.7	34.0	31.3
$50,001–$75,000	26.8	25.6	43.3	40.5	32.4	33.3
$75,001–$100,000	35.2	33.5	39.8	41.9	43.1	39.5
Over $100,000	55.1	48.1	28.3	31.0	62.1	52.6

IV.Augmented sample

	University		College		Ever-enrolled university	
Income group	1998	2001	1998	2001	1998	2001
Overall	27.6	26.4	34.7	34.4	35.3	33.2
Less than $25,000	18.7	18.9	32.4	29.5	26.7	26.9
$25,000–$50,000	25.3	21.7	34.1	37.6	33.3	27.6
$50,001–$75,000	26.5	23.4	38.8	38.3	32.0	29.1
$75,001–$100,000	33.6	35.4	41.2	37.5	41.0	41.6
Over $100,000	50.6	42.7	29.6	32.0	60.1	50.3

Note: Estimates are calculated using the combined-panel longitudinal weights.
Source: Author's calculations, Survey of Labour and Income Dynamics.

Table 5: Conditional college participation rates, 1996-2001

	Overall	Less than $25,000	$25,000 - $50,000	$50,001 - $75,000	$75,001- $100,000	Over $100,000	Gap low-high
1996 University	31.5	21.5	28.0	24.8	36.1	58.6	
College	34.9	31.9	36.7	40.1	37.4	24.4	
% not attending university	68.5	78.5	72.0	75.2	63.9	41.4	
Conditional college	50.9%	40.6%	51.0%	53.3%	58.5%	58.9%	18.3%
1997 University	32.5	20.5	28.2	28.9	39.5	53.3	
College	37.0	39.8	36.8	41.0	34.9	27.9	
% not attending university	67.5	79.5	71.8	71.1	60.5	46.7	
Conditional college	54.8%	50.1%	51.3%	57.7%	57.7%	59.7%	9.7%
1998 University	30.7	18.0	25.5	26.9	34.5	52.5	
College	36.6	36.7	32.9	41.3	42.1	29.9	
% not attending university	69.3	82.0	74.5	73.1	65.5	47.5	
Conditional college	52.8%	44.8%	44.2%	56.5%	64.3%	62.9%	18.2%
1999 University	30.7	21.8	26.7	26.7	30.5	48.8	
College	35.0	30.8	34.4	38.6	39.8	29.1	
% not attending university	69.3	78.2	73.3	73.3	69.5	51.2	
Conditional college	50.5%	39.4%	46.9%	52.7%	57.3%	56.8%	17.4%
2000 University	30.0	20.9	25.5	26.1	33.2	44.4	
College	34.7	29.1	34.0	39.7	36.1	31.9	
% not attending university	70.0	79.1	74.5	73.9	66.8	55.6	
Conditional college	49.6%	36.8%	45.6%	53.7%	54.0%	57.4%	20.6%
2001 University	30.0	19.5	23.3	25.0	38.2	45.6	
College	35.4	29.4	36.5	38.2	38.1	31.8	
% not attending university	70.0	80.5	76.7	75.0	61.8	54.4	
Conditional college	50.6%	36.5%	47.6%	50.9%	61.7%	58.5%	21.9%

Sample: All youths, aged 18-24, not attending elementary or high school and living with at least one parent.
Note: Conditional college rates are calculated as (participation in college) / (not attending/completed university).
Source: Author's calculations, Survey of Labour and Income Dynamics.

Table 6: Participation rates by highest level of parental education, 1993-2001

Participation rates ...	1993	1994	1995	1996	1997	1998	1999	2000	2001
... in any post-secondary education									
University	80.7	83.1	81.7	86.4	86.4	80.5	83.8	80.3	81.1
Post-secondary certificate or diploma	63.7	67.3	65.7	70.7	69.8	69.5	67.0	67.8	68.2
High school or less	49.6	52.4	54.2	56.5	56.7	55.9	53.7	51.8	52.5
... in university									
University	47.7	52.5	53.2	59.7	54.9	48.2	52.8	49.2	49.6
				(2.435)	(2.230)	(2.549)	(2.295)	(2.288)	(2.378)
Post-secondary certificate or diploma	26.3	28.7	26.1	33.0	31.7	30.6	27.0	26.3	27.8
				(2.340)	(2.421)	(2.137)	(1.580)	(1.487)	(1.613)
High school or less	16.9	19.0	19.4	18.7	19.0	18.2	17.5	16.5	16.6
				(1.237)	(1.360)	(1.311)	(0.998)	(1.021)	(1.005)
... in college									
University	33.0	30.6	28.5	26.7	31.5	32.3	31.0	31.1	31.5
				(2.235)	(2.064)	(2.483)	(1.996)	(1.888)	(2.138)
Post-secondary certificate or diploma	37.4	38.6	39.6	37.7	38.1	38.9	40.0	41.5	40.4
				(2.064)	(2.134)	(2.171)	(1.718)	(1.757)	(1.544)
High school or less	32.7	33.4	34.8	37.8	37.7	37.7	36.2	35.3	35.9
				(1.370)	(1.289)	(1.462)	(1.279)	(1.274)	(1.389)
... ever-enrolled in university									
University	55.8	63.4	62.4	65.7	62.7	60.4	60.5	58.8	58.4
				(2.431)	(2.211)	(2.352)	(2.134)	(2.316)	(2.225)
Post-secondary certificate or diploma	38.3	38.6	36.7	40.4	39.9	41.1	36.5	35.5	35.9
				(2.254)	(2.389)	(2.353)	(1.189)	(1.757)	(1.728)
High school or less	23.1	24.6	24.8	22.6	23.3	23.4	22.2	21.9	21.9
				(1.308)	(1.412)	(1.401)	(1.087)	(1.087)	(1.089)
Number of observations	3,112	3,244	3,307	6,652	6,775	6,947	6,644	6,494	7,171

Sample: All youths aged 18-24 not attending high school or elementary school.
Note: Cross-sectional weights were used to produce estimates for the reference year. Bootstrap weights were used to calculate the standard errors for reference years 1996-2001. Bootstrap weights were unavailable for 1993-1995.
Source: Author's calculations, Survey of Labour and Income Dynamics, 1993-2001.

Table 7: Participation rates by family type 1993-2001 (standard errors)

Particpation rates	1993	1994	1995	1996	1997	1998	1999	2000	2001
... in any post-secondary education									
Couple family	68.6	70.0	70.1	68.9	71.6	71.0	67.2	66.1	67.3
				(1.293)	(1.340)	(1.370)	(1.202)	(1.184)	(1.246)
Lone-parent family	55.6	59.4	63.4	57.6	61.1	53.0	58.6	59.0	57.6
				(3.360)	(2.923)	(2.945)	(2.660)	(2.259)	(2.573)
... in university									
Couple family	33.7	37.3	34.5	34.3	35.1	33.7	32.5	31.5	32.1
				(1.534)	(1.506)	(1.547)	(1.240)	(1.245)	(1.305)
Lone-parent family	27.6	29.2	29.1	21.2	22.6	19.1	22.0	23.7	21.9
				(2.389)	(2.679)	(2.117)	(2.219)	(2.330)	(2.174)
... in college									
Couple family	34.9	32.7	35.6	34.6	36.5	37.3	34.7	34.6	35.2
Lone-parent family	28.0	30.2	34.3	36.4	38.5	34.2	34.7	32.6	35.0
... ever-enrolled in university									
Couple family	40.3	43.7	40.9	38.0	40.2	40.5	37.5	38.6	38.5
Lone-parent family	37.8	36.7	35.0	23.3	28.0	28.0	31.2	30.2	28.6
Number of observations	1,691	1,680	1,656	3,484	3,449	3,615	3,730	3,579	3,763

Sample: Youths aged 18-24 not attending high school or elementary school and living at with at least one parent.
Note: Cross-sectional weights were used to produce estimates for the reference year. Bootstrap weights were used to calculate the standard errors for reference years 1996-2001. Bootstrap weights were unavailable for 1993-1995.
Couple families include married and common-law couples. Lone-parent families include both female-and male-headed lone-parent families.
Source: Author's calculations, Survey of Labour and Income Dynamics, 1993-2001.

Table 8: Participation rates by region, 1993-2001 (standard errors)

Particpation rates	1993	1994	1995	1996	1997	1998	1999	2000	2001
... in any post-secondary education									
Atlantic provinces	56.2	59.4	57.2	59.3	63.5	62.4	59.7	58.2	58.7
Quebec	68.8	70.4	71.1	73.7	72.0	72.7	70.4	67.1	69.3
Ontario	51.2	58.5	62.5	59.6	63.4	60.7	56.3	58.6	58.3
Prairie provinces	54.7	54.4	50.8	54.7	57.0	55.4	54.8	53.3	53.2
British Columbia	65.4	56.1	59.1	54.4	58.2	54.1	57.3	56.5	58.1
... in university									
Atlantic provinces	27.6	32.2	33.0	32.3	35.2	30.9	33.5	34.0	33.2
				(1.916)	(2.084)	(2.061)	(2.065)	(1.807)	(1.065)
Quebec	23.5	26.6	21.4	23.3	21.7	23.8	24.5	22.7	24.2
				(2.103)	(1.771)	(1.816)	(1.840)	(2.039)	(2.002)
Ontario	25.6	28.7	32.5	34.9	36.4	32.3	28.0	28.2	28.6
				(2.342)	(2.156)	(2.163)	(1.718)	(1.502)	(1.656)
Prairie provinces	24.1	26.4	24.2	25.7	26.3	23.9	25.7	23.9	25.8
				(2.153)	(2.047)	(1.546)	(1.417)	(1.699)	(1.624)
British Columbia	26.8	22.8	26.5	24.4	24.5	24.3	23.3	25.2	25.6
				(2.816)	(2.665)	(2.622)	(2.304)	(2.849)	(2.605)
... in college									
Atlantic provinces	28.6	27.2	24.2	27.0	28.3	31.5	26.2	24.2	25.5
Quebec	45.3	43.8	49.7	50.4	50.3	48.9	45.9	44.4	45.1
Ontario	25.6	29.8	30.0	24.7	27.0	28.4	28.3	30.4	29.7
Prairie provinces	30.6	28.0	26.6	29.0	30.7	31.5	29.1	29.4	27.4
British Columbia	38.6	33.3	32.6	30.0	33.7	29.8	34.0	31.3	32.5
... ever enrolled in unversity									
Atlantic provinces	39.1	44.3	44.4	41.2	45.2	42.6	43.0	44.9	44.9
				(1.994)	(2.186)	(1.970)	(1.916)	(1.819)	(1.593)
Quebec	27.7	34.7	27.9	25.6	24.0	26.9	28.9	27.5	28.5
				(2.135)	(1.813)	(1.908)	(1.791)	(2.071)	(1.923)
Ontario	36.0	35.3	38.8	37.8	40.3	41.4	35.0	35.2	35.0
				(2.351)	(2.153)	(2.505)	(1.979)	(1.847)	(1.701)
Prairie provinces	31.6	35.4	35.7	33.2	35.4	33.3	32.9	33.0	32.8
				(2.340)	(2.084)	(1.703)	(1.518)	(1.702)	(1.614)
British Columbia	32.1	28.5	31.0	31.4	32.8	32.9	29.2	32.0	34.2
				(2.843)	(2.928)	(2.788)	(2.213)	(3.005)	(2.866)
Number of observations	3,112	3,244	3,307	6,652	6,775	6,947	6,644	6,494	7,171

Sample: All youths aged 18-24 not attending high school or elementary school.
Note: Cross-sectional weights were used to produce estimates for the reference year. Bootstrap weights were used to calculate the standard errors for reference years 1996-2001. Bootstrap weights were unavailable for 1993-1995.
Source: Author's calculations, Survey of Labour and Income Dynamics 1993-2001.

Table 9: Least squares regression results of the elasticity between post-secondary participation and parental income for all youths aged 18–24, 1993–2001

I. Measure of parental income: Annual

	University participation				*College participation*				Sample size
	Intercept	Elasticity LN (parental income)	Standard error	R-square	Intercept	Elasticity LN (parental income)	Standard error	R-square	
Year									
1993	-0.812	0.105		0.037	0.452	-0.011		0.000	1691
1994	-0.894	0.115		0.043	0.181	0.014		0.001	1680
1995	-0.349	0.062		0.013	0.388	-0.003		0.001	1656
1996	-0.694	0.094	(0.014)	0.036	0.304	0.004	(0.015)	0.000	3484
1997	-0.660	0.092	(0.017)	0.031	0.600	-0.022	(0.015)	0.002	3449
1998	-0.811	0.104	(0.013)	0.038	0.321	0.004	(0.015)	0.000	3615
1999	-0.543	0.078	(0.014)	0.020	0.239	0.010	(0.014)	0.000	3730
2000	-0.640	0.086	(0.012)	0.026	0.341	0.001	(0.014)	0.000	3579
2001	-0.638	0.086	(0.013)	0.029	0.210	0.013	(0.015)	0.001	3763

II. Measure of parental income: 2-year average

	University participation				*College participation*				Sample size
	Intercept	Elasticity LN (parental income)	Standard error	R-square	Intercept	Elasticity LN (parental income)	Standard error	R-square	
Year									
1998	-0.871	0.110	(0.018)	0.035	0.408	-0.005	(0.017)	0.001	3135
2001	-0.721	0.094	(0.016)	0.025	0.387	-0.002	(0.016)	0.001	3151

III. Measure of parental income: 3-year average

	University participation				*College participation*				Sample size
	Intercept	Elasticity LN (parental income)	Standard error	R-square	Intercept	Elasticity LN (parental income)	Standard error	R-square	
Year									
1998	-0.910	0.114	(0.020)	0.036	0.440	-0.007	(0.014)	0.001	3042
2001	-1.000	0.119	(0.017)	0.037	0.421	-0.005	(0.015)	0.001	2952

Note: The coefficients on LN(parental income) for univeristy participation are statistically different from zero at the 1% level of signficance. Those for college participation are not statistically diffferent from zero at the 1% level of significance for all survey years. Table entries are least squares estimation results from Model (1) described in the text.
Weights: Cross-sectional weights were used for estimates derived from annual income. Combined longitudinal weights were used for estimates derived from 2-year and 3-year average of parental income. Bootstrap weights were used to calculate the standard errors for 1996-2001. Bootstrap weights were not available for 1993-1995.

Sample: All youths aged 18-24, not attending high school or elementary school and residing with at least one parent.
Source: Author's calculations, Survey of Labour and Income Dynamics, 1993–2001.

Table 10: Coefficient estimates from least squares regression: Annual parental income

	1993	1994	1995	1996	1997	1998	1999	2000	2001
I. Dependent variable : University participation									
Constant	0.254	0.311	0.237	0.351	0.365	0.309	0.291	0.292	0.260
Parental income									
Less than $25,000	-0.076	-0.139	0.067	-0.059	-0.073	-0.060	-0.047	-0.048	-0.031
				(0.040)	(0.042)	(0.037)	(0.035)	(0.034)	(0.035)
$50,001–$75,000	0.086	0.019	0.089	-0.054	0.003	0.004	-0.011	0.003	0.016
				(0.038)	(0.038)	(0.037)	(0.036)	(0.029)	(0.029)
$75,001–$100,000	0.118	0.124	0.137	0.060	0.098	0.076	0.023	0.071	0.141
				(0.040)	(0.042)	(0.042)	(0.034)	(0.035)	(0.035)
Over $100,000	0.239	0.235	0.266	0.274	0.230	0.249	0.205	0.181	0.216
				(0.043)	(0.042)	(0.042)	(0.036)	(0.038)	(0.035)
R-square	0.055	0.065	0.059	0.081	0.081	0.072	0.049	0.043	0.051
II. Dependent variable : College participation									
Constant	0.316	0.311	0.348	0.319	0.352	0.321	0.304	0.298	0.304
Parental income									
Less than $25,000	-0.058	-0.070	-0.077	-0.045	-0.030	-0.038	-0.043	-0.039	-0.073
				(0.040)	(0.039)	(0.040)	(0.038)	(0.034)	(0.039)
$50,001–$75,000	-0.030	0.021	-0.019	0.025	-0.002	0.038	0.031	0.047	0.009
				(0.037)	(0.034)	(0.037)	(0.031)	(0.031)	(0.032)
$75,001–$100,000	0.011	0.044	0.002	-0.002	-0.033	0.048	0.048	0.072	0.041
				(0.037)	(0.040)	(0.037)	(0.034)	(0.032)	(0.037)
Over $100,000	-0.087	-0.064	-0.033	-0.075	-0.076	-0.032	-0.033	0.008	-0.017
				(0.036)	(0.038)	(0.037)	(0.033)	(0.037)	(0.033)
Lone parent	-0.02	-0.039	0.011	-0.067	-0.031	-0.06	-0.047	-0.016	-0.034
				(0.033)	(0.035)	(0.035)	(0.026)	(0.027)	(0.025)
R-square	0.045	0.041	0.064	0.064	0.066	0.047	0.055	0.052	0.051
Number of observations	1,691	1,680	1,656	3,484	3,449	3,615	3,730	3,579	3,763

Sample: All youths aged 18–24, not attending elementary or high school and living with at least one parent.
Note: The reference groups are parental income $25,000–$50,000, living in Ontario and residing in a couple family. Bootstrap weights were used to calculate the standard errors. Bootstrap weights are not available for 1993-1995.
Source: Author's calculations, Survey of Labour and Income Dynamics.

Table 11: Coefficient estimates from linear probability model: Parental education (standard errors)

	1993	1994	1995	1996	1997	1998	1999	2000	2001
I. ***Dependent variable*** University - attending or completed									
Parental education: university	0.308	0.339	0.339	0.402	0.350	0.299	0.351	0.329	0.330
				(0.033)	(0.034)	(0.035)	(0.031)	(0.030)	(0.031)
Parental education: college	0.091	0.103	0.072	0.137	0.116	0.118	0.092	0.096	0.110
				(0.031)	(0.032)	(0.033)	(0.024)	(0.025)	(0.026)
R-Square	0.087	0.111	0.106	0.154	0.112	0.081	0.115	0.094	0.090
II. ***Dependent variable*** University - ever-enrolled in university									
Parental education: university	0.332	0.395	0.384	0.424	0.384	0.370	0.384	0.373	0.037
Parental education: college	0.150	0.146	0.126	0.170	0.153	0.169	0.141	0.133	0.138
R-Square	0.084	0.112	0.110	0.167	0.130	0.109	0.120	0.109	0.010
III. ***Dependent variable*** College - attending or completed									
Parental education: university	-0.002	-0.033	-0.0739	-.0954	-0.0495	-0.0494	0.040	-0.0399	-0.034
				(0.035)	(0.034)	(0.035)	(0.027)	(0.028)	(0.033)
Parental education: college	0.052	0.051	0.036	0.013	0.020	0.027	0.050	0.067	0.0501
				(0.031)	(0.030)	(0.031)	(0.026)	(0.028)	(0.028)
R-Square	0.034	0.030	0.048	0.071	0.049	0.045	0.057	0.046	0.048

Sample: All youths aged 18-24 not attending elementary or high school.
Note: Standard errors are reported in brackets and are calculated using bootstrap weights. Bootstrap weights are not available for 1993-1995.
Reference groups are parent's highest level of education is high school or less and living in Ontario.
Source: Author's calculations, Survey of Labour and Income Dynamics, 1993-2001.

Table 12: Coefficient estimates from linear probabilty model: parental education and income jointly

	1993	1994	1995	1996	1997	1998	1999	2000	2001
Dependent variable: currently attending or completed university									
Constant	0.227	0.261	0.197	0.308	0.324	0.261	0.248	0.237	0.207
Parent education - university	0.263	0.300	0.298	0.326	0.279	0.228	0.310	0.278	0.265
				(0.037)	(0.037)	(0.036)	(0.033)	(0.031)	(0.034)
Parent education - college	0.080	0.064	0.033	0.098	0.085	0.101	0.081	0.074	0.064
				(0.030)	(0.037)	(0.034)	(0.024)	(0.025)	(0.027)
Annual income - over $100,000	0.107	0.117	0.148	0.151	0.122	0.179	0.083	0.092	0.130
				(0.044)	(0.044)	(0.044)	(0.036)	(0.038)	(0.037)
Annual income - $75,001 - $100,000	0.055	0.096	0.104	0.022	0.032	0.040	-0.038	0.017	0.096
				(0.036)	(0.041)	(0.042)	(0.031)	(0.033)	(0.034)
Annual income - $50,001 - $75,000	0.055	0.016	0.087	-0.057	-0.022	-0.011	-0.049	-0.012	0.009
				(0.034)	(0.038)	(0.037)	(0.030)	(0.029)	(0.029)
Annual income - less than $25,000	-0.048	-0.095	0.082	-0.035	0.074	-0.050	-0.036	0.031	-0.017
				(0.038)	(0.041)	(0.037)	(0.032)	(0.034)	(0.035)
Lone parent	-0.022	-0.021	-0.015	-0.066	-0.045	-0.071	-0.072	-0.044	-0.054
				(0.035)	(0.030)	(0.021)	(0.027)	(0.027)	(0.027)
R-square	0.092	0.116	0.117	0.169	0.126	0.103	0.117	0.092	0.097
Number of observations	1,691	1,680	1,656	3,484	3,449	3,615	3,730	3,579	3,763

Sample: All youths aged 18-24, not attending elementary or high school and living with at least one parent in reference year.
Note: The reference groups are parent's highest level of education is high school, parental income $25000 - $50000, living in Ontario and residing in a two-parent family.
Bootstrap weights were used to compute the standard errors. Bootstrap weights are not available for 1993-1995.
Source: Author's calculation, Survey of Labour and Income Dynamics 1993-2001.

Table 13: Coefficient estimates from linear probability model: parental (annual) income and parental education interacted and estimated jointly

	1993	1994	1995	1996	1997	1998	1999	2000	2001
Dependent variable: currently attending or completed university									
Constant	0.223	0.241	0.187	0.276	0.309	0.296	0.264	0.249	0.218
Parent education - university	0.340	0.275	0.297	0.453	0.348	0.181	0.184	0.193	0.214
				(0.077)	(0.092)	(0.080)	(0.080)	(0.075)	(0.074)
Parental education - college	0.055	0.124	0.073	0.139	0.118	0.07	0.073	0.073	0.078
				(0.061)	(0.064)	(0.062)	(0.047)	(0.052)	(0.048)
Income - over $100k	0.063	0.017	0.128	0.234	0.142	0.085	0.012	0.055	0.057
				(0.095)	(0.089)	(0.076)	(0.065)	(0.065)	(0.062)
Income $75,001 - $100,000	0.067	0.156	0.171	0.031	0.098	-0.022	-0.049	-0.007	0.070
				(0.053)	(0.071)	(0.063)	(0.047)	(0.048)	(0.051)
Income $50,001 - $75,000	0.048	0.016	0.053	0.012	-0.014	-0.074	-0.051	-0.031	0.022
				(0.046)	(0.051)	(0.052)	(0.040)	(0.038)	(0.036)
Income less than $25,000	-0.036	-0.075	0.067	-0.009	-0.068	-0.059	-0.071	-0.019	-0.042
				(0.045)	(0.051)	(0.051)	(0.040)	(0.041)	(0.037)
Selected interaction terms									
parent_univ*parent_100K+	-0.033	0.142	0.081	-0.194	-0.071	0.102	0.145	0.111	0.115
				(0.125)	(0.132)	(0.121)	(0.103)	(0.104)	(0.100)
parent_univ*parent_75K - 100K	-0.099	0.061	-0.168	-0.073	-0.071	0.112	0.194	0.109	0.069
				(0.111)	(0.129)	(0.117)	(0.099)	(0.100)	(0.111)
parent_univ*parent_50K - 75K	-0.093	-0.032	0.014	-0.235	-0.112	0.103	0.087	0.080	0.01
				(0.110)	(0.122)	(0.126)	(0.106)	(0.092)	(0.097)
parent_univ*parent_< 25K	-0.191	-0.016	0.103	-0.129	-0.11	-0.038	0.2285	0.090	0.018
				(0.141)	(0.140)	(0.131)	(0.116)	(0.139)	(0.121)
parent_coll*parent_100K+	0.09	0.081	0.075	-0.026	-0.082	-0.041	0.111	-0.014	0.027
				(0.130)	(0.115)	(0.102)	(0.930)	(0.091)	(0.099)
parent_coll*parent_75K - 100K	0.003	-0.252	0.145	-0.001	0.012	0.031	-0.063	-0.010	-0.042
				(0.084)	(0.098)	(0.096)	(0.068)	(0.075)	(0.087)
parent_coll*parent_50K - 75K	0.039	-0.017	-0.005	-0.144	-0.14	0.097	0.015	0.027	-0.055
				(0.076)	(0.084)	(0.087)	(0.066)	(0.068)	(0.061)
parent_coll*parent_< 25K	0.059	-0.081	0.025	-0.038	0.019	0.026	0.032	-0.070	0.079
				(0.104)	(0.091)	(0.104)	(0.098)	(0.080)	(0.111)
lone_parent				-0.079	-0.045	-0.081	-0.067	-0.041	-0.052
				(0.033)	(0.035)	(0.030)	(0.026)	(0.027)	(0.025)
R-square	0.096	0.1267	0.1337	0.176	0.132	0.1138	0.1256	0.0964	0.1026
Number of observations	1691	1680	1656	3484	3449	3615	3730	3579	3763

Sample: All youths aged 18-24 not attending elemntary or high school and living with at least one parent.
Note: The reference groups are parent's highest level of education is high school, parental income 25000 - 50000, living in Ontario and residing in a couple family. There are 12 interaction terms (parental education*parental income) introduced in this model. Bootstrap weights were used to calculate the standard errors. Bootstrap weights are not available for 1993-1995.
Source: Author's calculations, Survey of Labour and Income Dynamics, 1993-2001.

Table 14: Predicted values from linear probability model

	1993	1994	1995	1996	1997	1998	1999	2000	2001
$100,000+ University education	0.596	0.681	0.684	0.769	0.728	0.664	0.625	0.608	0.604
$100,000+ HS education	0.268	0.251	0.315	0.510	0.451	0.381	0.276	0.304	0.275
$25,000 University education	0.560	0.516	0.484	0.729	0.657	0.474	0.448	0.442	0.432
$25,000 HS education	0.223	0.241	0.187	0.276	0.309	0.296	0.264	0.249	0.218

*holding constant region and family type. Reference groups are Ontario and residing in a two-parent family

Analytical sample: youths aged 18-24 and living with at least one parent

Note: Predicted values calculated using the results from Table 12.

Source: Author's calculations, Survey of Labour and Income Dynamics.

Table 15: Selected results from linear probability models: various measures of parental income

Dependent variable: university	1998			2001		
	Annual	2-year average	3-year average	Annual	2-year average	3-year average
Table 9 Elasticities						
ln (income)	0.104	0.110	0.114	0.086	0.094	0.119
	(0.013)	(0.018)	(0.020)	(0.013)	(0.016)	(0.017)
Table 10 Parental income in categories						
Less than $25,000	-0.060	-0.068	-0.052	-0.031	-0.027	-0.079
	(0.037)	(0.040)	(0.042)	(0.035)	(0.036)	(0.039)
$50,001–$75,000	0.004	0.002	-0.024	0.016	-0.007	-0.004
	(0.037)	(0.038)	(0.037)	(0.029)	(0.031)	(0.032)
$75,001–$100,000	0.076	0.060	0.055	0.141	0.067	0.067
	(0.042)	(0.044)	(0.043)	(0.035)	(0.037)	(0.037)
Over $100,000	0.249	0.260	0.248	0.216	0.195	0.216
	(0.042)	(0.043)	(0.043)	(0.051)	(0.040)	(0.040)
* reference group is parental income $25,000 - $50,000						
Table 12 Parental income and education estimated jointly						
Parent education = university	0.228	0.216	0.219	0.265	0.282	0.278
	(0.036)	(0.041)	(0.041)	(0.034)	(0.035)	(0.035)
Parent education = college	0.101	0.104	0.107	0.064	0.052	0.051
	(0.034)	(0.038)	(0.037)	(0.027)	(0.028)	(0.028)
Parental income >$100,000	0.180	0.186	0.169	0.131	0.107	0.103
	(0.044)	(0.047)	(0.048)	(0.037)	(0.041)	(0.041)
$75,001–$100,000	0.040	0.020	0.015	0.096	0.036	0.017
	(0.042)	(0.044)	(0.042)	(0.034)	(0.038)	(0.037)
$50,001–$75,000	-0.011	-0.012	-0.037	0.009	-0.009	-0.022
	(0.037)	(0.038)	(0.037)	(0.029)	(0.031)	(0.032)
Less than $25,000	-0.050	-0.056	-0.042	-0.017	-0.056	-0.076
	(0.037)	(0.039)	(0.040)	(0.035)	(0.037)	(0.040)
* reference groups are parental income $25,000 - $50,000 and parental education is high school or less.						
Table 13 Parental income estimated jointly and interacting						
Parent education = university	0.181	0.179	0.242	0.214	0.235	0.274
	(0.090)	(0.063)	(0.080)	(0.074)	(0.078)	(0.086)
Parent education = college	0.070	0.067	0.171	0.078	0.087	0.112
	(0.062)	(0.052)	(0.057)	(0.048)	(0.052)	(0.054)
Parental income >$100,000	0.082	0.100	0.167	0.057	0.082	0.051
	(0.076)	(0.061)	(0.071)	(0.061)	(0.069)	(0.072)
$75,001–$100,000	-0.055	0.041	0.002	0.070	0.039	0.038
	(0.063)	(0.059)	(0.061)	(0.051)	(0.058)	(0.051)
$50,001–$75,000	-0.074	0.084	-0.019	0.022	0.008	0.009
	(0.052)	(0.059)	(0.057)	(0.036)	(0.035)	(0.041)
Less than $25,000	-0.060	-0.024	-0.032	-0.041	-0.001	-0.027
	(0.051)	(0.056)	(0.055)	(0.037)	(0.048)	(0.048)

Note: * reference groups are parental income $25,000 - $50,000 and parental education is high school or less.
All parental income coefficients and interaction terms are not statistically significant at the 10% level.
Source: Author's calculations, Survey of Labour and Income Dynamics, 1993-2001.

Appendix Table 1: Sample sizes for analyses using 2-year and 3-year average of parental income

	Reference Year		
	2001	1998	1995
Sample of 18-24 not attanding elementary or high school	7,171	6,947	3,307
Number of longitudinal respondents	5,520	5,471	2,588
Number living with at least one parent	3,461	3,341	1,509
..... 2-year average of parental income	3,151	3,135	1,430
..... 3-year average of parental income	2,952	3,042	1,381

Source: Survey of Labour and Income Dynamics, 1993-2001.

Appendix Table 2: Exploiting the longitudinal nature of the SLID data

	Year = 2001, Year-2 = 1999		Year = 1998, Year-2 = 1996		Year = 1995, Year-2 = 1993	
Sample of those 18-24 years old not attending elementary/high school	**7,171**		**6,947**		**3,307**	
Number of longitudinal respondents in year	**5,520**		**5,471**		**2,588**	
who live with at least one parent	3,461		3,341		1,507	
who did not live with at least one parent	2,059		2,130		1,081	
Number of cohabitants	**1,642**		**1,476**		**717**	
who live with at least one parent	295		274		149	
who did not live with at least one parent	1,347		1,202		568	
Number of longitudinal respondents in year	**5,520**		**5,471**		**2,588**	
Number living with at least one parent	**3,461**		**3,341**		**1,507**	
Number who did not live with at least one parent in year	**2,059**		**2,130**		**1,081**	
Number lived with a parent in year - 2	1,043		965		546	
Number who did not live with a parent in year - 2	1,016		1,165		537	
Number who did not live with at least one parent in year	**2,059**		**2,130**		**1,083**	
Number who did not live with at least one parent in year AND who lived with at least one parent in year-2	**1,043**		**965**		**543**	
Assign family income using year-2 family identifiers	978		914		503	
Cannot assign family income	65		51		43	
Number who did not live with a parent in year-2	**1,016**		**1,165**		**537**	
Longitudinal analytical sample	**Sample**	**Percent***	**Sample**	**Percent***	**Sample**	**Percent***
Number living with at least one parent in year	3,461	66.2%	3,341	61.1%	1,507	58.2%
Assign year family income using year-2 family identifier	978	14.6%	914	16.7%	501	19.4%
Cannot assign family income	1,078	19.2%	1,216	22.2%	580	22.4%
Total longitudinal sample	5,520	100.0%	5,471	100.0%	2,588	100.0%

Note: * Percentages are calculated using the combined-panel longitudinal weights.
Source: Survey of Labour and Income Dynamics, 1993-2001.

Appendix Table 3: Least squares regression results of the elasticity between ever-enrolled in university and college and annual parental income for all youths aged 18–24, 1993–2001

	Ever-enrolled in university			Ever-enrolled in college			
	Intercept	LN parental income	R-square	Intercept	LN parental income	R-square	Sample size
Year							
1993	-0.8840	0.1180	0.0427	0.7981	-0.0261	0.0020	1,691
1994	-0.9299	0.1247	0.0468	0.7422	-0.0209	0.0013	1,680
1995	-0.0942	0.0448	0.0063	0.3705	0.0158	0.0008	1,656
1996	-0.6979	0.0979	0.0367	0.5084	-0.0020	0.0000	3,484
1997	-0.6788	0.0977	0.0327	0.7455	-0.0193	0.0012	3,449
1998	-0.7092	0.1006	0.0332	0.4660	0.0082	0.0002	3,615
1999	-0.5209	0.0811	0.0201	0.3923	0.0126	0.0004	3,730
2000	0.6562	0.0942	0.0282	0.3872	0.0127	0.0005	3,579
2001	-0.4341	0.0734	0.0190	0.3820	0.0140	0.0007	3,763

Note: The coefficients on LN(parental income) for ever-enrolled in university participation are statistically different from zero at the 1% level of signficance for all survey years. Those for college participation are not statistically different from zero at the 1% level of significance for all survey years.
Source: Author's calculations, Survey of Labour and Income Dynamics, 1993-2001.

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